



2<sup>nd</sup> International Congress of Veterinary Pharmacology  
دومین کنگره بین المللی داروشناسی دامپزشکی

In the Name of God  
the Compassion, the Merciful

2nd International Congress of  
Veterinary Pharmacology

Abstract Proceedings

Organizer



سازمان نظام دامپزشکی جمهوری اسلامی ایران  
Veterinary Council I.R. IRAN

Co-Organizer



همایش پردازان معاصر  
CONTEMPORARY CONFERENCE  
ORGANIZERS (CCO)



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**In the name of Allah**

It is my great pleasure to welcome all the scientists, researchers and the honorary guests, especially the participants from other countries, to the **2<sup>nd</sup> International Congress of Veterinary Pharmacology** that is to be held from 13 to 14 December 2011, in Imam Khomeini Hospital of Tehran University of Medical Sciences at Tehran, Iran.

The 1<sup>st</sup> International Congress of Veterinary Pharmacology & Pharmaceutical Sciences (1<sup>st</sup> ICVPS) held 3 years ago (4-5 October 2008) in Tehran. This congress is the 9<sup>th</sup> international congress held by the Veterinary Council of Iran during five years. Our aim is to put great emphasis on all developing fields of veterinary pharmacology, evidence-based findings and new technologies.

This event is designed for the students, academicians, researchers and other veterinary and health professionals interested in the main advances in the veterinary pharmacology and related sciences. Young veterinarians have especially showed their desire to participate for which I am very thankful. The congress scientific program consists of a range of topics pertinent to clinicians and scientists involved in the management of, and research into, the rapidly developing field of medicinal industry with focus on veterinary approaches & aspects.

I would like to express my sincere thanks to all members of organizing and scientific committees and Iranian Veterinary Council members whose endeavors made this gathering possible.

I wish to thank all the contributors to the congress, as they promote professional knowledge of veterinary pharmacology, and those who contributed as executive and scientific committee member and also I wish to thank Prof. Morteza Samini, the emeritus professor of Pharmacology at Tehran University of Medical Sciences (Congress Secretary), Dr. Hossein Najafzadeh Varzi, the Associate professor of Pharmacology at Shahid Chamran University of Ahvaz (Chairman of Scientific Committee) and also wish to thanks Dr. Siamak Goharkhay (Congress Executive Manager).

I look forward to seeing you during the **3<sup>rd</sup> International Congress Veterinary Pharmacology (3<sup>rd</sup> ICSV)** in 3 years time.

**Dr. S. M. Aghamiri**  
**President of Veterinary Council I.R. of Iran**



## 2<sup>nd</sup> International Congress of Veterinary Pharmacology

دومین کنگره بین المللی داروشناسی دامپزشکی

**In the name of God, the Compassionate, the Merciful**

The organizing committee cordially welcomes all distinguished participants from around the world to the 2<sup>nd</sup> International Congress of Veterinary Pharmacology (2<sup>nd</sup> ICVP) in Tehran in World Veterinary Year 2011 (Vet 2011), a landmark year for the veterinary profession around the world. The congress is organized under the auspice of the Veterinary Council of I.R. IRAN.

This Congress is an opportunity for those who are involved in Veterinary Pharmacology all over the world to meet and discuss the latest research findings. The scientific programs of the congress will cover general topics including:

- \* Pharmacodynamics
- \* Drug Resistance
- \* Pharmacokinetics
- \* Clinical Pharmacology
- \* Drug Interaction
- \* Toxicology
- \* Drug Abuse
- \* Drug Toxicity
- \* Drug Residues
- \* Herbal & Natural Drugs
- \* Pharmacognosy
- \* Biological Products
- \* Drug Formulation
- \* Pharmaceutical Facilities
- \* New Technologies in Industrial Pharmacy
- \* Drug Development
- \* Drug Regulations

The congress has attracted over 523 abstracts which among them 30 papers were accepted for oral and 174 for poster presentation, respectively. In addition, 7 keynote lectures will be presented.

We hope that you find the scientific program stimulating and social events attractive in the autumn time, when our capital city of Tehran provide a beautiful and fascinating environment for your stay. The program consists of invited lecturers, contributed papers and poster presentations. Additionally, there will be an exhibition on scientific instruments, laboratory equipments, industrial products, scientific journals and books.

We would like to express our appreciation to all fellow ICVP organizing and scientific committee members for their contributions and hope that the discussions will be solution-oriented and constructive.-We look forward to seeing you at the 3<sup>rd</sup> ICVP as soon as possible.

Sincerely,

**Morteza Samini, PharmD, PhD**

Emeritus Professor of Pharmacology, School  
of Medicine, Tehran University of Medical  
Sciences, Tehran, Iran  
Congress Secretary

**Hossein Najafzadeh Varzi, DVM, PhD**

Associate professor, Department of  
pharmacology & toxicology, Shahid Chamran  
University-Ahvaz-Iran  
Chairman of the Scientific Committee

**Khosro Zarrinbakhsh, DVM**

Deputy of the Pharmaceutical  
Committee, Veterinary Council, I.R.  
IRAN



## **Organizing Committee**

### **Chairman:**

**Dr. Seyed Mohammad Aghamiri**

President of Veterinary Council of Islamic Republic of Iran

### **Members:**

**Prof. Morteza Samini**

Congress Secretary, Emeritus Professor of Pharmacology, School of Medical Sciences, Tehran  
University of Medical Sciences, Tehran-Iran

**Dr. Hossein Najafzadeh Varzi**

Chairman of Scientific Committee, Associate Professor of Pharmacology, Faculty of Veterinary  
Medicine, Shahid Chamran University, Ahvaz-Iran

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Congress Executive Secretary, Deputy of Health, Education and Development of Veterinary  
Council of Islamic Republic of Iran

**Dr. Khosro Zarrinbakhsh,**

Deputy of Pharmaceutical Committee of Veterinary Council of Islamic Republic of Iran

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Congress Coordinator, Congresses Manager and Coordinator of Scientific Committees of  
Veterinary Council of Islamic Republic of Iran

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Member of Pharmaceutical Committee of Veterinary Council of Islamic Republic of Iran

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**Dr. Siamak Goharkhay**

Congress Executive Manager, Managing Director of Contemporary Conference Organizers (CCO)



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- Dr. Saeed Kolahian
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2<sup>nd</sup> International Congress of Veterinary Pharmacology

دومین کنگره بین المللی داروشناسی دامپزشکی

# Congress Program

## Oral Presentations



## 2<sup>nd</sup> International Congress of Veterinary Pharmacology

دومین کنگره بین المللی داروشناسی دامپزشکی

Tuesday, December 13, 2011

<i>Opening Ceremony</i>
<i>8:15 – 10:30</i>
<i>10:30 – 11:15 Break &amp; Poster Presentation</i>

Tuesday, December 13, 2011

11:15 – 12:45

### Keynote Speakers

Panel coordinator: Prof. M. Samini		
Members: Dr. G. Sadeghi-Hashjin, Dr. H. Najafzadeh Varzi , Dr. S. Habibian		
<i>Time</i>	<i>Speaker</i>	<i>Title</i>
11:15 – 11:40	Prof. M. Samini	The Problem of Drug Resistance
11:40 - 12:05	Dr. F. Kobarfard	Drug Analysis
12:05- 12:25	Dr. A. Montaseri	Human Resource Management
12:25-12:45	Discussion	
12:45 – 13:30: Lunch & Refreshment 13:30 – 14:00: Poster Presentation		





**Tuesday, December 13, 2011**

**14:00 – 15:30**

**Session 1**

**Pharmacokinetics and Pharmacodynamics**

Panel coordinator: Dr. A. Rassouli		
Members: Prof. G. Sepehri, Dr. M. Giorgi, Dr. Kh. Zarrinbakhsh		
<i>Title</i>	<i>Speaker</i>	<i>Time</i>
Mirtazapine in Beagle dogs	Dr. M. Giorgi (Italy)	25 min
New Drug Delivery System	Dr. A.R. Dabirsiaghi	25 min
Pharmacokinetics of Long acting Amoxicillins in Buffalo Calves.	Dr. M. A. Rasheed (Pakistan)	12 min
Evaluation of the antioxidant effects of omeprazol on the cysteamine-induced duodenal ulcer in the rat	Dr. F. Saghaei	12 min
A PK/PD study after single oral administration of two dose levels of zolpidem in dogs	Dr. A. Briganti (Italy)	12 min
Discussion		
15:30 – 16:00 Break & Poster Presentation		



Tuesday, December 13, 2011

16:00 – 18:00

Session 2

Clinical Pharmacology (1)

Panel coordinator: Dr. H. A. Arab Members: Prof. M. Gh. Nadalian, Prof. M. Bolourchi, Dr. A. Rassouli		
<i>Title</i>	<i>Speaker</i>	<i>Time</i>
The effects of therapeutic dose of gentamicin on magnesium and parathormone in sheep	Dr. A. Jafari Dehkordi	12 min
Propranolol hydrochloride and Activated charcoal as a Treatment of Experimental Oleander Poisoning in sheep	Dr. S. Ozmaie	12 min
Antimicrobial resistance and K99 (F5) gene possession in generic Escherichia coli isolated from different age groups of diarrheic and non-diarrheic newborn dairy calves in Mashhad, Iran	Dr. E.A. Afshari Safavi	12 min
In-Vitro and In-Vivo antibiotic trials in naturally Strangles affected Mules in Pakistan	Dr. M. Ijaz (Pakistan)	12 min
Comparative survey of effectiveness of Emisol (Erfan daroo) and Trypan (diminazen.diaceturate + procaine Hcl + antiprine (phenazone) ) on cattle and sheep infected by babesiosis in Mazandaran and their effects on immune system and liver enzymes	Dr. F. Vosoughi	12 min
Anthelmintic Resistance in Gastrointestinal Nematodes of Sheep in Iran	Dr.H.R. Shokrani	12 min
Effect of single and repeated doses of Enrofloxacin upon biochemical markers in female Rabbit	Dr. Z. Rahman (Pakistan)	12 min
Discussion		



Wednesday, December 14, 2011

8:15 – 10:30

Session 3

Herbal and Natural Drugs

Panel coordinator: Dr. H. A. Arab		
Members: Dr. H. Najafzadeh Varzi, Dr. S.A. Fatemi, Dr. A. A. Jafari		
<i>Title</i>	<i>Speaker</i>	<i>Time</i>
Effects of antioxidants in experimental hepatotoxicity and nephrotoxicity	Dr. H. Najafzadeh Varzi	25 min
Red Clover: an alternative for hormone replacement therapy with antioxidant effects	Dr. H. Malekinejad	12 min
Antiviral and Cytotoxic properties of Silybum marianum, Chenopodium album and Nigella sativa against Peste des petitis ruminants and Foot and Mouth Disease viruses in-Vitro	Dr. A. Javeed (Pakistan)	12 min
Effects of aqueous extracts of St Johns wort (Hypericum perforatum) leaf on hematological, some biochemical and survival of rainbow trout under thermal stress	Dr. M. Ghiasi	12 min
The effects of the extracts from Carthamus tinctorius L. on placental histo-morphology and survival of the neonates in mice	Dr. A. Louei monfard	12 min
Crocin suppresses the expression of iNOS in spinal cords of Experimental Autoimmune Encephalitis mice as a model of Human Multiple sclerosis	Dr. M. Dabbaghi	12 min
Histopathologic and morphometric evaluation of Garlic Extract on the wound healing process in silver carp (Hypophthalmichthys molitrix)	Dr.M. Amini	12 min
Discussion		
10:30 – 11:15 Break & Poster Presentation		



Wednesday, December 14, 2011

11:15 – 12:45

Session 4  
Toxicology of Drugs

Panel coordinator: Dr. J. Salar-Amoli		
Members: Dr. H. Malekinejad, Dr. A. Rassouli, Dr. B. Rezvanjoo		
<i>Title</i>	<i>Speaker</i>	<i>Time</i>
Evaluation of the acute and subacute toxicity of a new clofibrate analogue (silafibrate) in experimental animals.	Dr. M. Ziaee	12 min
Toxicologic Pathology of Levamisol in Whit Balb/C Mice at Basrah City/ Southern Iraq	Dr. S. A. Al-Azizz (Iraq)	12 min
Evaluation of Oxidative Stress Induced by Excess Methionine intake in Rat	Dr. A. Ensafi	12 min
The antagonistic effect of suramin and vitamin K3 combination against the venom of the Iranian snake Echis carinatus in mice	Dr. B. Fathi	12 min
Evaluation of oxidative changes in erythrocyte membranes of sheep experimentally exposed to paraquat	Dr. V. Lesan	12 min
Histopathological survey on Salinomycin toxicity in broiler chickens infected by coccidiosis	Dr. F. Moayer	12 min
Discussion		
12:45 – 13:30: Lunch & Refreshment 13:30 – 14:00: Poster Presentation		



Wednesday, December 14, 2011

14:00 – 15:00

**Session 5**

**Clinical Pharmacology (2)**

Panel coordinator: Dr. H. Najafzadeh Varzi		
Members: Dr. S. Mashhady Rafie, Dr. S. Habibian, Dr. S. Kolahian		
<i>Title</i>	<i>Speaker</i>	<i>Time</i>
Therapeutic Management of Otitis Externa Induced by <i>Malessezia pachydermatis</i> in 76 Dogs from 2003 to 2011	Dr. S. Mashhady Rafie	12 min
Efficacy of Metoclopramide, Promethazine, Vitamin B6 and Ondansetron on Emesis in Cats Sedated with Xylazine HCl	Dr. S. Kolahian	12 min
The effect of Mexiletine on the hepatic enzymes in the cat	Dr. R. Ebrahimi Hariry	12 min
Cyclin D1 mRNA Level is Downregulated in Murine Model of Alzheimer's Disease	Dr. A. Afkhami goli	12 min
Discussion		
15:00 – 15:30: Break & Poster Presentation		



Wednesday, December 14, 2011

15:30– 16:45

Session 6

Clinical Pharmacology(3)

Panel coordinator: Dr. G. Sadeghi-Hashjin		
Members: Dr. H. Najafzadeh Varzi, Dr. I. Sharifpour, Dr. J. Razmyar		
<i>Title</i>	<i>Speaker</i>	<i>Time</i>
The effects of combined usage of Masoten and Levamesole Hydrochloride on external parasites of farmed fish	Dr. M. Rahanandeh	12 min
Effectiveness Of Hydrogen Peroxide, Nanosilver, Chloramine-T For Treating Fungal Infection of Acipenser persicus Larvae	Dr. A. Ghazvini	12 min
Effect of Ivermectin on Macrophage Engulfment and Delayed Type Hypersensitivity in Broilers	Dr. M. O. Omer (Pakistan)	12 min
Therapeutic Effects of Butalex, Diminazen, Imidocarb and Chloroquin against Haemoproteus spp Infection in Pigeons	Dr. G. R. Razmi	12 min
Discussion		

*Closing Ceremony*

16:45 – 17:15



**2<sup>nd</sup> International Congress of Veterinary Pharmacology**

دومین کنگره بین المللی داروشناسی دامپزشکی

# Poster Presentations



Tuesday, December 13, 2011

10:30 – 12:30

No	Code	Description
1	107	Comparative Study on effect of two kind of Antibiotic (Pantrisol & Oxytetracycline 20%) in treatment of lamb chronic Pneumonia
2	114	Effects of Dietary Organic Acids and Essential Oils on Growth Performance and Carcass Characteristics of Broiler
3	117	Evaluation Of Formaldehyde Disinfection
4	121	The Effectiveness Of Phosphoric Calcareous On The Quality Of Eggs In Laying Hens
5	774	Effects of probiotics on performance and serum biochemical parameters in rabbit model
6	801	Chemical and Bio-Equivalence studies of various veterinary brands of Amoxicillin.
7	802	Effect of Garlic ( <i>Allium Sativum</i> ) on the Growth Performance and Immune Status of Broiler Chicks
8	804	Occurrence of Lincomycin toxicity in two dairy cows
9	807	Effects of Corticosteroids on Dinitrochlorobenzene (DNCB)-induced Delayed Type Hypersensitivity (DTH) Reaction in the Mouse
10	808	Effect of Co-trimoxazole on sub-clinical form of gastrointestinal salmonellosis in Tehran pet dogs
11	810	Effects of plant extraction of fumariaceae on control of <i>Trichostrongylus axei</i> in infected goats
12	812	Histological assessment of worm infestation in ovine and its treatment with two different plants extraction as a anti helminthic and anti inflammatory medicine
13	822	HYPOGLYCEMIC EFFECT OF PORTULACA OLERACEA L. (POP) ON DIABETIC POULTRY AND ANTIDIABETIC ACTIVITY OF POP ON DECREASE GLUCAGON
14	828	The effect of watermelon shell ( <i>Citrullus lanatus</i> ) on feather pecking and dust bathing behavior of broiler chickens on heat stress
15	829	The effect of pumpkin oil ( <i>Cucurbita pepo</i> ) on performance and mortality of Iranian Native Chickens on heat stress
16	830	Studying pathologic effects of Dexametazon in around of semnan villages pit doves.
17	831	In vitro anthelmintic activity of <i>Peganum harmala</i> against <i>Parabronema skrjabini</i>
18	833	Effect of different concentrations of <i>Nigella sativa</i> extract on <i>Escherichia coli</i> and <i>Staphylococcus aureus</i> culture
19	834	Detection of residual oxytetracycline in rainbow trout meat in Shahre-kord, Iran
20	837	Study effects of Meloxicam in epidural analgesia in dogs
21	839	Effect of marine toxin <i>Bride</i> (jelly fish) on mice.
22	844	Serogrouping and Drug Resistance Analysis of <i>Salmonella</i> spp. Isolates from Broiler flocks
23	861	Cardiac arrhythmia due to furosemide induced hypokalemia in Iranian fat-tailed sheep
24	863	Hydrocortisone acetate ophthalmic ointment on treatment of keratoconjunctivitis due to <i>Mycoplasma</i> spp. in Holstein dairy calves
25	864	Ivermectin intoxication in two Holstein dairy calves
26	865	Preventing sub-clinical bovine mastitis by using a post-milking teat disinfectant containing iodophor
27	866	The first report of metoclopramide toxicity in a Holstein dairy cow
28	867	Treatment of oral lesions of contagious ecthyma in <i>Camelus dromedarius</i> with concentrated extract of pomegranate
29	868	Studying the effect of changing Post Milking Teat Dipping (PMTD) on Bulk Tank Somatic Count (BTBC) in dairy farms
30	869	EFFECTS OF AMPICILLIN ON THE GENTAMICIN-INDUCED NEPHROTOXICITY IN RAT





Tuesday, December 13, 2011

13:00 – 15:00

No	Code	Description
1	901	Effects Of Tulathromycin (Draxxin) On contractility Of Isolated Myometrium In Rats
2	909	The study of mineral and organic toxin absorbants on the blood, immunity, liver histopathology parameters and the function in Aflatoxicosis in broilers
3	910	Effects of Clarithromycin On Electrocardiogram Findings In Cat
4	911	Analgesic properties of metoclopramide on postoperative pain following routine ovariohysterectomy in bitches
5	913	protective effect of Crocin on Aβ1-42 –induced neurotoxicity in primary rat basal forebrain neurons
6	923	Comparison between the effect of antiparasitic and immunostimulative dose of levamisole on hematologic parameters in dog
7	927	Pulmonary Responses of Rats Exposed to Titanium Dioxide Nanoparticles Injected Interatrachealy
8	930	Interaction between Gentamicin and Mycophenolate Mofetil in experimentally-induced pyelonephritis in rat
9	932	Poisoned baits: a rising concern for animal health
10	938	Determination of Naturally Occurring Estrogenic Hormones in Raw and Cooked Bovine Meat
11	940	Antimicrobial susceptibility of Salmonella isolates from broiler farms around Sari city of Mazandaran province
12	943	Steroid Hormones in Red Meat of Cattle and River buffalo
13	945	Effect of Razianeh(Foeniculum) on steroidal hormones (progesterone& estrogen) and prolactin in female rats
14	948	Comparative efficacy of florfenicol 10% and doxycycline 10% on performance of broiler flocks involved with colibacillosis
15	949	Study On Sumac (Rhus Coriaria L.) Essential Oil Composition And Its Antimicrobial Effect Against Salmonella Typhimurium
16	953	Histopathological and stereological studies of Soybean Hydroalcoholic Extract effects on the rat ovary
17	954	Evaluation of Lemon-Glycerin oil effect on wound healing in experimental burns
18	957	The antimicrobial susceptibility of Salmonella isolates from broiler chicken farms in the vicinity of Ghaemshahr, Mazandaran
19	962	A Study of the effect of combination Rhubarb and clove extract on the Wound Healing Process of round wound type in Rat .
20	976	Comparative study on antibiotic residue in raw milk of Qom farms during the various seasons
21	984	Effect of xylazine on tear production as measured by Schirmer tear test in normal cats
22	987	Clinical investigation of general anesthesia effect induced by Ketamin-Tramadol combination in pigeon
23	994	Antifungal and Morphologic Changes Caused by Aniseed Essence in Zygomycetes Fungi
24	995	Antifungal Effects of Zataria multiflora
25	996	The effects of simultaneous application of kanamycin and Furanace antibiotics on the bacterial infection control in trout through feeding and bathing treatment
26	997	The effects of combined application of Masoten and Levamesole Hydrochloride on external parasites of farmed fish
27	998	Prevalence of Antibiotic Residues In Pasteurized Milk In Tabriz.
28	1003	rotective effects of Salvia verticillata during Serum/Glucose Deprivation in PC12 cells
29	1004	Effect of oral atenolol on intraocular pressure in healthy dogs
30	1012	Tilmicosin Toxicity in goats



Tuesday, December 13, 2011

15:30 – 17:30

No	Code	Description
1	1019	In vitro antibiotic susceptibility of Coagulase Negative Staphylococci (CNS) Isolated from bovine subclinical mastitis in Mashhad
2	1023	Efficacy of CIA vaccine in broiler breeder flock based on variation and persistency in anti-CAV antibodies titers
3	1025	Prevalence of antibiotic resistance in Staphylococcus spp. isolated from cheese and raw milk in Mashhad
4	1026	Study of antibacterial activity of hollyhock hydro alcohol extract(alcea) and garlic(allium satiram) against two bacteria E.Coli PTCC1330 and Pseudomonas aeruginosa PTCC1077
5	1029	Effects of Salvia officinalis extract on serum biochemical parameters in rabbit
6	1034	Evaluation of echocardiography followed co-administration of lasalocid and florfenicol in broiler chickens
7	1035	Effects of Ivermectin administration on serum biochemical parameters in sheep
8	1036	Effects of Teucrium polium Essential oil on Pancreatic Function of Streptozotocin Diabetic Rats
9	1037	Crocine downregulates the expression of Toll-Like Receptors in spinal cords of Experimental Autoimmune Encephalitis mice as a model of Human Multiple sclerosis
10	1053	the effect of intracerebroventricular injection of propranolol and isoproterenol on the food intake in broiler
11	1055	Effect of glyceryl trinitrate on the plasma levels of hepatic enzymes in guinea pigs
12	1061	Therapeutic and Methaphylactic Effects of Florfenicol Therapy During Natural Outbreak of Sheep Pasteurellosis in Bushehr Province
13	1065	Effect of acepromazine on tear production as measured by Schirmer tear test in normal cats
14	1066	Effects of epidural administration of xylazine or lidocaine on bovine uterine motility and perineal analgesia
15	1077	The Role of Prostaglandins in the Regulation of Blood Glucose: An Experimental Study
16	1081	In vitro Evaluation of Antipasteurellosis Effect of Different Extracts of Syzigium cumini
17	1089	Effect of Temperature, pH, Sodium Chloride and Antibiotic on the Growth of Saprolegnia sp. and Achlya sp. Isolated from Infected Common Carp (Cyprinus carpio L.)
18	1090	TOXOLOGIC PATHOLOGY OF PIPERAZINE (PHINOTHIAZINE) IN WILD PIGEON AT BASRAH CITY/ SOUTHERN IRAQ
19	1091	Protective Effect of Pomegranate Juice Against Experimental Lead Poisoning in Rats
20	1092	Studies on Indian herbals in treatment of infectious Bacterial species - Staphylococcus aureus, Escherichia coli, Pseudomonas aeruginosa, Proteus mirabilis, Klebsiella sp., Salmonella enteritidis, Shigella flexneri
21	1094	Study For Anthelmintic Activity of Aerial Parts of Capparis spinosa In vitro
22	1097	Histopathological Study of Gill on Barbus sharpeyi Exposed to Eugenol
23	1098	Antimicrobial Susceptibility and Enzyme Production of Bacterial Isolates from Cows Mastitis in Basrah Province
24	1108	Efficacy of Ivermectin on the Gastrointestinal Nematode to Base Fecal Egg Counts in Goats
25	1111	Survey on the efficacy of different antibiotics in the treatment of calf pneumonia
26	1115	Effect of silymarin on lipid per oxidation by thiobarbituric acid test in serum of heat stressed ewes



Tuesday, December 13, 2011 15:30 – 17:30		
No	Code	Description
27	1118	Genotoxicity assessment of Amaranth and Allura red using <i>Saccharomyces cerevisiae</i>
28	1119	Comparative Efficacy of Four Anthelmintics for the Control of Gastrointestinal Nematodes in Sheep in Boukan City
29	1123	Effect of synbiotic biomin imbo on humoral immunity against infectious bursal disease in broiler chickens (Ross-308)
30	1125	Acetaminophen Toxicity in a 5-Year-Old Terrier



Wednesday, December 14, 2011

8:30 – 10:30

No	Code	Description
1	1126	Report of Metronidazole Toxicosis in a 9-Year-Old Cat
2	1128	Effect of transient hypothyroidism on thyroid gland characteristics in lamb
3	1132	A survey on epidemiology of urinary tract infections and resistance pattern of uropathogenes in Milad hospital
4	1133	Detection of some antibiotic residues in poultry carcasses slaughtered in an industrial abattoir of Mashhad
5	1134	Acetaminophen-induced toxicosis in cats and Effects of various antidotal treatments on acetaminophen toxicosis
6	1136	Development and Clinical Use of New Experimental Foaming Tablet for Intrauterine Use in Cows with Postpartal Endometritis
7	1138	Antihyperlipidaemic Efficacy of Pennisetum glaucum Bran in Albino Rats
8	1143	Isoflurane MAC after alfentanil administration in cats
9	1145	Effect of fennel ( <i>Foeniculum vulgare</i> ) on carbon tetrachloride-induced hepatotoxicity in rats
10	1147	Investigating therapeutic effect of 2.5% albendazole suspension against gastrointestinal nematods, cestods, trematods and liver flukes in cattle
11	1148	Antimicrobial Susceptibility Testing in <i>Ornithobacterium rhinotracheale</i> Strains of Broiler Chickens in Razavi Khorasan Province, Iran
12	1150	Effect of ferrite-cobalt nano particles on serum biochemical factors changes in rats
13	1153	Antifungal activity of Nettle ( <i>Urtica dioica</i> ) aqueous extract against fish pathogen ( <i>Saprolegnia parasitica</i> )
14	1154	Effect of Nettle ( <i>Urtica dioica</i> ) ethanolic extract on growth rate of <i>Saprolegnia parasitica</i>
15	1158	The effects of Mint ( <i>Mentha piperita</i> ) and Anise ( <i>Illicium verum</i> ) essential oils with and without organic acid on some blood parameters and haemagglutination inhibition test in broilers at first 21 days of age
16	1168	Effects of Clove Oil Essence Loaded on Iron Nanoparticles on Aminotransferase Enzymes in Rainbow Trout
17	1179	Protective Effect of oral administrations of silymarin on blood biochemical parameters of rainbow trout exposed to sub-lethal diazinon
18	1181	Protective Influence of Silymarin on Antioxidant Defense System in the liver and Hematological Parameters of Rainbow trout Treated with Diazinon
19	1185	Treatment methods of pathogenic or saprophytic fungi in Guppy fish ( <i>Poecilia reticulata</i> ) in Shahrekord area
20	1187	Antibiotic sensitivity of <i>Lactococcus garvieae</i> isolated from cultured rainbow trout ( <i>Oncorhynchus mykiss</i> ).
21	1188	Study of antibiotic resistant of <i>Aeromonas hydrophila</i> causative agent of Haemorrhagic septicemia in farmed Gold fish ( <i>Carassius auratus auratus</i> )
22	1189	Chemical composition of the essential oils of <i>Stachys laxa</i> Boiss. and <i>Artemisia absinthium</i> L. and their synergistic antimicrobial activity with fluconazole and nisin against <i>Candida albicans</i> and <i>Escherichia coli</i> O157:H7
23	1208	Effect of Novastar Pesticide on Biochemical Profiles in Male Rats
24	1214	Drug resistance patterns of <i>Escherichia coli</i> isolates from cases of broiler chickens colibacillosis that referred to poultry clinical science of Shahre-kord University
25	1215	Effects of oral suspension 8/75 % triclabendazole + Levamisole on cestodes of Gastrointestinal tract of sheep



**Wednesday, December 14, 2011**

**8:30 – 10:30**

No	Code	Description
26	1216	Effect of silymarin extract on immune system of rainbow trout ( <i>Oncorhynchus mykiss</i> ) challenge by diazinon
27	1217	Effects of oral suspension 8/75 % triclabendazole + Levamisole on nematodes and trmatodes of Gastrointestinal tract of sheep
28	1218	Influence extract of milk thistle ( <i>Silybum marium</i> ) as medical herbal on non-specific immune system of Carp ( <i>Cyprinus carpio</i> ) challenge by diazinon
29	1220	Investigating therapeutic effect of 250mg blouse of Triclobendazole on the Fasciola Hepatica in sheep
30	1253	Comparison of the effects of hypericin and synthetic antidepressants on the expression of morphine-induced conditioned place preference



Wednesday, December 14, 2011  
11:00 – 13:00

No	Code	Description
1	1254	Study of the effects of different doses of Teucrium Polium on morphine withdrawal syndrome in mice
2	1256	Antioxidant activity and total phenolic content of variation Iranian Tea.
3	1259	Evaluation of the analgesic effect of hydroalcoholic extract of Matricaria recutita in writhing test
4	1268	Arbitrary treatment performed by owners of domestic animals before coming to veterinary small animal clinic of Tehran university
5	1272	Survey of the benefits of mycotoxin-chelating agents usage in prevention of Aflatoxicosis in cattle fed by diets containing Aflatoxin in Mazandaran and Semnan Provinces
6	1277	The effect of oral administration of ascorbic acid on the thyroid hormones changes in before and after physical activity among Arab-race horses
7	1278	Effect of silymarin(silybum marianum) Extract and Aloe-vera Extract on the wound healing process in silver carp (Hypophthalmichthys molitrix)
8	1279	Evaluation of the effect of Diazepam (valium), zinc sulfate and Vit-A on skin wound healing in fish
9	1281	Evaluation of the Anti-inflammatory effects of clove oil in common carp ( cyprinus carpio)
10	1283	Evaluation of Allium hirtifolium effects on wound healing In rainbow trout ( oncorhynchus mykiss )
11	1286	Comparison of common anti nematodes drugs in canine digestive truck infection
12	1291	The usage of garlic in treatment of ring worm
13	1292	The usage of the mint for curing the flea on the skin of the dogs
14	1293	The Cardiopulmonary Effects of Verapamil-Ketamine Anesthesia in Dog.
15	1298	Effect of Strawberry and Green Tea Extracts Inclusion in Semen Extender, on Post Thawed Semen Quality of Sahiwal Bull Semen
16	1300	Microbiological Screening Method For Detecton Of Antibiotics Residues In Ostich Meat Samples Of Zarandieh Ostrich Complex Farm
17	1306	Effect of Estrogen on the Process of Wound Healing in Streptozotocin-induced Diabetic Rabbits
18	1307	Determination of the Macroscopic Effect of Actinidia deliciosa (Kiwi Fruit) on Wound Healing in Rabbits
19	1308	The Effect of Diltiazem on the Healing of Traumatic Urethral Inflammation
20	1311	Nano particles of cobalt effect on serum biochemical factors changes in sheep
21	1323	Ivermectin effect on Parafilaria bovicola (Nematoda: Filarioidea)
22	1324	Evaluation of the effect of nano silver on epididimal sperm quality and testis histopathological changes
23	1328	Evaluation of Allium hirtifolium effects on wound healing In rainbow trout ( oncorhynchus mykiss )
24	1329	Study of melatonin at therapeutic dose level on the expression of neuronal nitric oxide synthases, superoxide dismutase, gonadotropin release hormone, glutathion peroxidase and Type 2 iodothyronine deiodinase mRNA level in diabetic rats
25	1331	Effects of Electrolytes imbalance on immunity against New Castle Disease Virus Infection
26	1334	Antimicrobial resistance patterns of Escherichia coli isolated from domestic ruminants
27	1336	Effect of Temperature, pH, Sodium Chloride and Antibiotic on the Growth of Saprolognia sp. and Achlya sp. Isolated from Infected Common Carp (Cyprinus carpio L.)
28	1337	The comparison between serum concentration changes of BUN and Creatinine during gentamycin and gentamycin + Enrofloxacin administration to goat kids
29	1338	TOXOLOGIC PATHOLOGY OF LEVOZAN IN WHIT BALB/C MICE AT BASRAH
30	1339	TOXOLOGIC PATHOLOGY OF PIPERAZINE HYDRATE IN MALE WILD PIGEON AT BASRAH



Wednesday, December 14, 2011  
13:30 – 15:30

No	Code	Description
1	1341	Effect of thyme extract on <i>Escherichia coli</i> intestinal microbial load hematological factors and performance of broiler chickens
2	1352	Evaluation of antioxidant effects of crocin on streptozocin-induced diabetes mellitus in rats
3	1354	The study of the effect of two famous members of Liliacea family on some opportunity infection agents
4	1356	The pattern of drug administration in large animals in Mazandaran province, north of Iran during 12 months
5	1357	Comparison between subcutaneous and intrauterine administration of Ceftiofur for treatment of endometritis in dairy cows
6	1359	Histopathological and serological study on the effects of bee balm in liver of Raeini's goat.
7	1360	To evaluate the adverse effects of flunixin, ketoprofen and phenylbutazone when administered I/V to clinically normal miniature donkeys.
8	1369	ASPERGILLUS CHEMOREGULATION BY NATURAL HERBAL EXTRACTS AND ESSENCE INFLUENCES IN 14 SPECIES OF NORTHERN IRAN ISOLATES
9	1381	Evaluation of effects of essential oil of three species <i>Thymus</i> On <i>E.coli</i> , <i>Pseudomonas aeruginosa</i> , <i>Staphylococcus aureus</i> and <i>Candida albicans</i> and compare effect of antimicrobial species <i>Thymus</i> with Ampicillin and gentamicin
10	1396	Investigation Of Analgesic And Antiinflammatory Effects Of <i>Malva Neglecta</i> Hydroalcoholic Extract.
11	1398	Histopathological Evaluation Of Protective Effect Of <i>Cichorium Intybus</i> On Acetaminophen Induced Hepatotoxicity In Broilers
12	1399	Tiotropium Efficacy on Reducing Airway Hyperactivity in Cat as an Animal Model for COPD
13	1400	Histopathological Effect of Vitamin E on Testis tissue after treatment with Citalopram in rat.
14	1402	Effect of mint on inflammatory bowel disease improvement of dog (IBD)
15	1405	Effect of <i>Silybum marianum</i> Extract( <i>Silymarin</i> ) On Healing Experimental Burn Wounds In Rabbit
16	1406	Determination of antibiotic susceptibility of <i>Escherichia coli</i> isolates from feces of household cats in Kerman
17	1413	Comparison of Prophylactic with Postoperative Antibiotic therapy Following Ovariectomy in Rabbits
18	1439	Comparison of the intraperitoneal anesthesia by combination of <i>Pelargonium roseum</i> essential oil - ketamine and Diazepam -ketamine in male rat
19	1440	<i>Rosa Damascena</i> Essential Oil Attenuate Morphine Withdrawal Signs in Mice
20	1441	Central effect of Xylazine and Yohimbine on sensitivity to pain in various steps of estrus cycle in Hamster.
21	1442	Co-administration of ascorbic acid and levodopa potentiated morphine induced- conditioned place preference in male mice
22	1447	In vitro determination of the contraceptive spermicidal activity of <i>Vitis vinifera</i> L. seed and leave hydro-alcoholic extract on rat sperm
23	1448	Enhancement of the Ketamine-Xylazine Induced General Anesthesia by Vitamin C in Rats
24	1345	Evaluation of the effects of ginger ( <i>Zingiber officinale</i> ) and recombinant bovine somatotropine on growth performance and survival rate of rainbow trout ( <i>Oncorhynchus mykiss</i> )
25	1445	Using <i>Kelussia odoratissima</i> E.Os for inhibition of <i>E.coli</i> (Urine Isolated)
26	1446	Antibacterial activity of <i>Alium hirtifolium</i> E.Os for inhibition of <i>E.coli</i> (Urine Isolated)
27	1157	Evaluation of the Efficacy of Treatment with Progesterone Hormone on Conception Rate in Repeat Breeder High Yielding Cows
28	1371	Study of benzocaine hydrochlorid in <i>Carassius carassius</i> (Linnaeus, 1758) anesthesia
29	1047	17 $\beta$ -estradiol attenuates stimulatory effect of leptin on TNF- $\alpha$ secretion from peripheral blood mononuclear cells







**2<sup>nd</sup> International Congress of Veterinary Pharmacology**

دومین کنگره بین المللی داروشناسی دامپزشکی

# Keynote Speakers' Papers



### The Problem of Drug Resistance

M. Samini, PharmD, PhD

Throughout history, there has been a continual unwinnable battle between humans and microorganisms.

Around the middle of 20<sup>th</sup> century, when sulfonamides and PG became available, the situation of bacterial infections dramatically improved. However, the euphoria of this victory was short lived and bacteria responded by manifested resistance.

As antimicrobial usage increased, so did the level and complexity of the resistance mechanism exhibited by bacterial pathogens, so that the expansion of resistance is a growing problem today.

Twenty years ago, if an antibiotic became less useful because of resistance, there was always another drug coming along to solve the problem. This supply line has markedly slowed and it is now much harder to find new drugs and many pharmaceutical companies have focused their efforts on more commercially rewarding markets, even as bacteria evolve ever more clever mechanisms of resistance. Unfortunately, MRSA, ESBL – producing *E. coli* and MDR bacteria are increasingly observed in the community and situation may get even worse.

#### Definition of resistance

Drug resistance is the reduction in effectiveness of a drug (an antimicrobial or an anticancer) in curing a disease. An organism is “resistant” when it is inhibited in vitro by an antibiotic concentration which is greater than that achievable in vivo. When an organism is resistant to more than one drug, it is said to be Multidrug Resistant (MDR) organism.

Therapeutic success depends not only on the activity of antimicrobial agent against the infecting organism, but depends also on the drug reaching the site of infection in sufficient concentration and the contribution that host’s own defense’s towards clearance of the offending microbes.

#### Cross – resistance

##### between related antibiotics



Complete Cross – resistance between the different Tetracyclines  
Resistance to aminoglycosides depends on which drug inactivation enzyme is produced by organism

##### between unrelated antibiotics



Resistance to cephalosporins gives resistance to methicillin

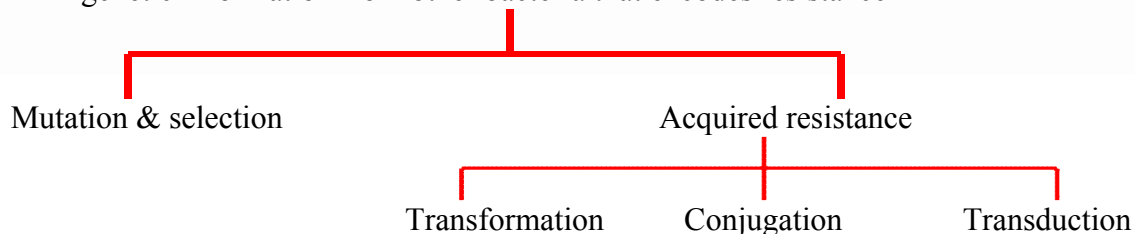
#### Intrinsic resistance

All bacteria are not intrinsically sensitive to all antibiotics, since some organisms are intrinsically resistant to some drugs:

- *E. Coli* is intrinsically resistant to macrolides
- Streptococcal infection is intrinsically resistant to AGs.
- *P. aeruginosa* and *M. tubercubsis* are intrinsically resistant to most of agents used to treat more tractable infections.
- Gram – negative bacteria are intrinsically resistant to glycopeptides.
- Aerobic bacteria are intrinsically resistant to metronidazole.



Susceptible bacteria may become resistant through mutation and selection or by acquiring the genetic information from other bacteria that encodes resistance



### Mutation and selection

Susceptible bacteria can acquire resistance to an antimicrobial agent via new mutations. The antibiotic action against the pathogen can be seen as an environmental pressure. If a population of bacteria with a few resistant individuals is exposed to a lethal antibiotic, the susceptible bacteria will die, but the resistant bacteria will survive and will live on to reproduce. Drug resistant traits are selected and they will then pass this trait to their offspring. Resistance that develops due to chromosomal mutation and selection is termed vertical gene transfer, in which parental traits are inherited to its own offspring. Resistance that develops due to transfer of genetic material to a being other than one of its own offspring is termed horizontal gene transfer. This kind of transfer may occur via transformation conjugation or transduction.

### Classification of mechanisms of drug resistance

The four main mechanisms by which microorganisms exhibit resistance to antimicrobials are:

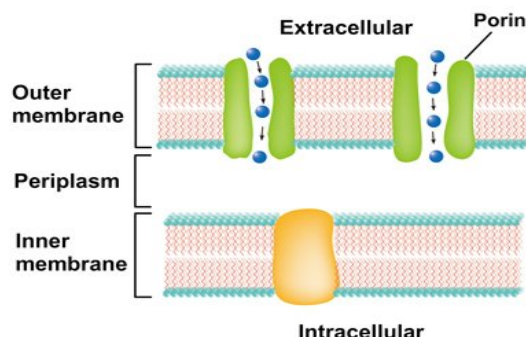
**1- Acquiring gene encoding enzymes that upregulating the production of enzymes that inactivate the antibiotic agents, examples include:**

$\beta$ -lactamases, Acetyltransferases, Phosphotransferases, Ribosomal metylase

**2- Loss of drug accumulation or increased drug elimination:**

**Loss of drug accumulation A)**

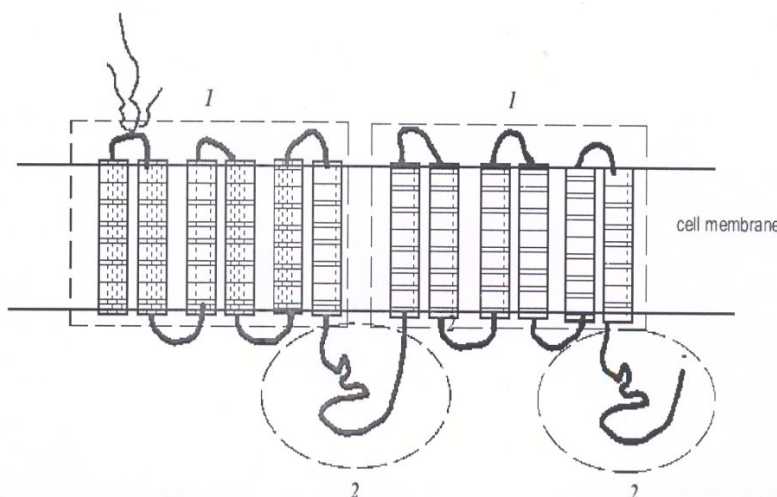
Small hydrophilic molecules like fluoroquinolones and chloramphenicol enter gram – negative bacteria, through Porins (aqueous channels) located in outer membrane. Porins may be specific Porins or nonspecific Porins. In gram – negative bacteria such as E. coli, most small water – soluble molecules (including antibiotics) enter the intracellular by diffusion via the nonspecific porins. Some gram – negative bacteria such as P.aeruginosa possess substrate - specific Porins that they allow for the passive diffusion of specific substrates, and for this reason, foreign substances such as antibiotics cannot enter the cell. ompC , ompF and phoE are non – specific porins proteins but oprD family are substrate – specific porins. Down regulation or altering in outer membrane porins cause impermeability of outer membrane which decrease uptake and cause resistance to antibiotics. For example in E.coli resistant to **quinolons** and  **$\beta$ -lactams** resistance is caused by down regulation in ompF and in P.aeruginosa resistant to **imipenem** is caused by low outer-membrane permeability.

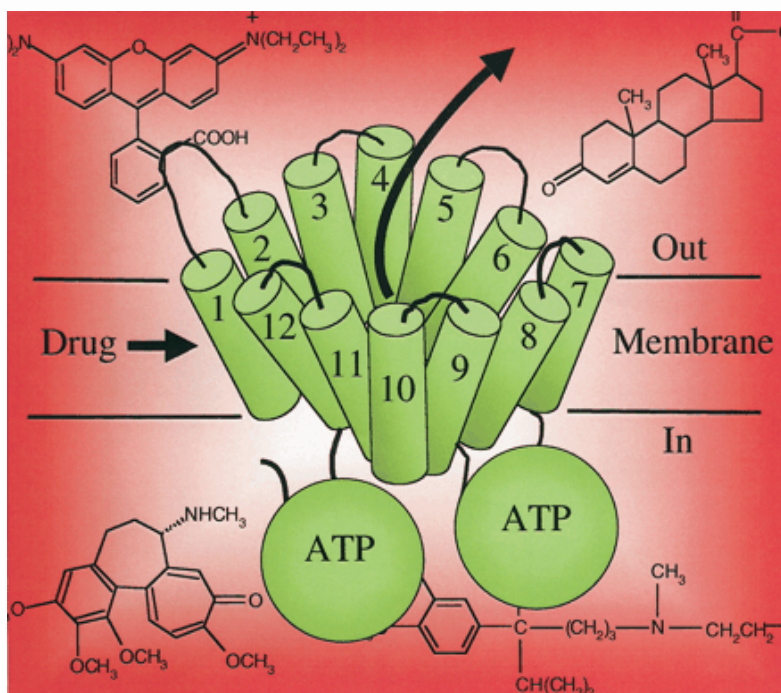


Porins located in the outer – membrane  
of gram – negative bacteria

### B) Increased drug elimination

**Quick Efflux:** Resistance may be associated with the synthesis of efflux pumps that extrude the drug from the cell before it can reach its target site and exert its effect. Active efflux is a mechanism responsible for extrusion of toxic substances and antibiotics outside the cell. The efflux systems function via energy – dependent mechanism to pump out. P- glycoproteins (Pgps) are the most common molecular pump protecting our cells from toxic molecules. Pgps are also export drugs from bacteria and parasites, so that drug entering the cell removed rapidly and fails to reach the effective level. This mechanism can be involved in resistance to tetracyclines in gram – positive and gram – negative bacteria, to emetine in entamoeba spp. and to mefloquine in plasmodium spp. Some efflux systems are drug – specific, while others may accommodate multiples drugs, and thus contribute to MDR in bacteria and cancer cells. Pgps (transmembrane transporters) are extensively distributed and expressed in certain cells (e. g. intestinal epithelium, BBB,), drug resistant bacteria and cancer cells. Drug Resistance is caused by the ability of Pgps to extrude drugs against a concentration gradient , resulting in a decrease of the intracellular drug concentration in contact with the drug target. Pgps consisting similar halves, each containing 6 putative transmembrane segment and an ATP – binding site. Following binding of a substrate and ATP, ATP hydrolysis shifts the substrate into a position to be extrude from the cell.





Pgps are responsible for multidrug resistance (MDR) in mammalian cancer cells. These cells gain their MDR by building extra - Pgp, which continually ejects the anticancer drugs (e.g. vinblastine, doxorubicin, etoposide ...) out of the cancer cells.

Increased intestinal expression of Pgp can reduce the drugs bioavailability. Decreased intestinal expression of Pgp can increase the drugs toxicity.

### 3 - Alteration of target's affinity for the drug:

Alteration of PBP in MRSA

Alteration of PBP in pneumococci

Alteration of DHFR

### 4 - Loss of drug activation in organism: Decrease of ferredoxin

#### Control of the spread of resistance

Bacterial resistance often results in treatment failure, which can have serious consequences.

Excessive and inappropriate use of antibiotics is the chief cause of the emergence of resistant organisms which threatens the continued effectiveness of antibiotics.

The major selective pressure leading to resistant bacteria in man is the use of antibiotics in human medicine.

To limit the developments of resistance one should:

1- Use antibiotics only for bacterial infections, and not use for most colds, coughs, bronchitis, sinus infections and eye infections, which are caused by viruses.

2- Use the right antibiotic, not stop antibiotic use as soon as symptoms improve, finish full course.

3- Identify the causative organism if possible.

4- Not use the outdated antibiotics.

5- Not use antibiotics in animals for growth promotion.

Wisely use of antibacterial drugs is one important means of reducing the selective pressure that helps resistant organisms emerge:



Using the **appropriate** drug, at the **appropriate** dosage and for the **appropriate** duration.

The other vital aspect of controlling the spread of MDR organism is providing sufficient personnel and resources for infection control in all healthcare facilities.

In a few situations, **combined chemotherapy** has definite advantages over single drug therapy. For example, in the treatment of tuberculosis combined chemotherapy is used to prevent the emergence of resistant M.tuberculosis.

Treatment of all forms of drug – resistant M.tuberculosis must be tailored to the specific form of resistance with appropriate and effective drug regimens:

Suggested regimen for M.tuberculosis resistant to isoniazid is 2 RZE and FQ followed by 4-7 R and FQ

New antibacterial agents with different mechanisms of action are also needed.

#### **Nanoparticles and resistant infections**

Antibiotic resistance can be overcome in vancomycin – resistant bacteria using gold nanoparticles coated with vancomycin. The use of nanoparticles is a growing new approach against biofilm-mediated, drug-resistant and device-centered infections. It has been suggested that selenium nanoparticles strongly inhibit the growth of staphylococcus aureus. The advantages of nanoparticles include their high surface-to-volume ratios and their nano-scale sizes. The higher surface areas of nanoparticles offer more sites for interacting with cells and also other bioactive molecules, such as anticancer and antibacterial drug molecules. Nanoparticles (with or without drug attached) of sizes between 10 to 100 nm can penetrate tissues with tumors and can kill cancerous cells while not affecting healthy cells, since the blood vessels in tissues with tumors have pore sizes ranging from 100 to 800 nm, while the vessels in healthy tissues have much smaller pore sizes, from 2 to 6 nm. The same advantages can be for inhibiting bacteria functions.

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### Role of pharmacokinetics in drug withdrawal time

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The study of a veterinary drug for use in a food producing animal requires the estimation of the withdrawal time which is the necessary interval between the last administration of the drug under normal conditions of use and the time when treated animals can be slaughtered for the production of safe foodstuffs. The withdrawal period should provide a high degree of assurance both to the producers and the consumers that the concentration of residues in foods derived from treated animals are not above the maximum residue levels (MRLs).

The potential health problems associated with drug residues include allergic reactions, direct toxic effects, and a change in the resistance patterns of bacteria exposed to antibiotics. Extensive testing has proven the safety and efficacy of approved products. The drug is metabolized in the animal's body and broken down or excreted, within the directed withdrawal time. Organs, such as the kidney and liver, remove residual drug and greatly reduce the content present in the meat or milk. These organs are the tissues tested for residues but the content in meat is less by many times. There is also a great dilution factor, from the mixing of milk from one cow with that of many others. Knowing how residues violation happen in farm animals involves understanding the following subject areas:

1. **Pharmacokinetics** (How drugs move through the body). In the drug approval process, estimates of tissue  $T_{1/2}$  are used to calculate slaughter withdrawal times. However, the serum  $T_{1/2}$  may also serve as an indicator of elimination from tissues because the serum and tissue concentrations are related. This relationship may vary considerably for different drugs.

**Absorption:** If a drug is given in the vein, then it is instantly 100% available to the body, and the rate of elimination from the body will be determined by the balance between distribution and elimination. However, in farm animals the most common routes of administration are IM and PO. A drug given by these routes must first be absorbed into the blood before the processes of distribution and elimination can begin. Different formulations for injection result in different elimination  $T_{1/2}$  characteristics.

**Distribution:** Is the process of a drug moving from the blood into tissues such as muscle and fat. When a drug has been distributed out to the tissues from the blood stream, it is not exposed to the organ(s) of elimination and, therefore, is going to stay in the body. Once equilibrium is reached between the blood stream and tissues, drug will diffuse back from the tissues as the blood stream concentration drops due to elimination from the body.

**Elimination:** Biotransformation and excretion of a drug occurs when the drug is exposed to the organ(s) responsible for elimination (usually the liver and/or kidneys). A constant percent of the drug exposed to the elimination organ(s) is eliminated per unit time for most drugs. Therefore, the amount of drug eliminated from the body is dependent on the speed of the elimination process and how quickly the drug is exposed to the organ(s) of elimination over time.

### 2. **Withdrawal times**

Withdrawal times are determined for edible target tissues by the Food and Drug Administration Center for Veterinary Medicine (FDA/CVM) during the drug approval process. These target tissues are most commonly the liver or kidney. As the primary organs of elimination, they will typically display a residue for the longest time. During withdrawal studies, the target organ is determined and animals are sampled at various times after drug administration is stopped. Statistical procedures are



used to determine when almost every animal given the drug would be below the drug tolerance concentration in the target organ.

It is important to realize that withdrawal times are based on the target organ falling below a tolerance, rather than to an absence of detectable drug residue. A tolerance concentration for a drug is determined using an ADI of the drug for an average sized person and an estimated annual consumption of the target organ. The ADI is calculated using toxicology study data combined with safety factors.

**Violation of residues above the tolerance concentration may be caused by the following factors:**

*Failure to observe an appropriate withdrawal time*

*Regimen changes for an approved drug*

*Extra-label use of a drug without an appropriate withdrawal time*

*Alteration of elimination processes*

### **How MRLs are set**

The withdrawal period is set out in the data sheet for the medicine and in the instructions for use which are part of the product packaging. Farmers are required by law to record all uses of animal medicines. Withdrawal periods exist so that MRLs are not exceeded and to ensure consumer safety. Although residues above the MRL should not occur, even if they do, they generally present no risk to the consumer because of the very large safety margins used in setting the MRL. For example, the calculation of the MRL value is based on the ADI for the drug in question and the calculation of the ADI includes an extremely large safety factor. In addition, the MRL calculation assumes an average intake per person of 500g of meat, 1.5 liters of milk, 2 eggs and 20g of honey. Manufacturers apply for an MRL, supplying two dossiers of information - on safety and residues - from which they can make their assessment.

The *Safety Dossier* contains all the pharmacology and toxicology studies carried out with the medicine in laboratory animals. These studies examine what happens to the substance in the body and assess how much can be given safely, without inducing any unwanted adverse effects. The safety dossier also includes the calculation of the ADI referred to earlier. This is based on results in laboratory animals and particularly on the so-called No-Observed-Effect Level (NOEL), the dose with no observable effect in the most sensitive test used. The WHO recommends that once the NOEL has been determined, a safety factor of between 100 and 1000 is applied to derive the ADI. The *Residues Dossier* contains all the data concerning the formation, nature, behavior and disappearance of residues after a medicine has been given to a farm animal.

Together, the results from the residues file on the quantities and behavior of residues in farm animals, with the ADI derived from the safety file and the theoretical food intakes mentioned earlier are used to calculate the MRL(s), on the assumption that consumers get the maximum level every day of their lives.

Considerable research effort is put into developing the safety and residues dossiers for veterinary medicines so that the ADI values can be calculated, MRLs set and withdrawal periods established. This process, together with residues monitoring to ensure that residues above the MRL do not occur and that prohibited drugs are not used serves to ensure safety for the consumer. Each of the food animal industries has responded to consumer and regulatory concerns by establishing quality assurance programs to help their producers insure improved quality of food products. Production agriculture has recognized that it can do a better job in preventing residues, as mistakes detected in the future will be so costly they will put some producers out of business because of one minor error.





**Drugs Analysis in Veterinary Products**

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Rapid advances have been made in many analytical techniques over the last 10 years. To a large extent in many industries, the quality control of products has become very important and has driven the development of analytical techniques, particularly chromatographic techniques.

Liquid chromatography and Gas chromatography are fundamental separation techniques in the life sciences and related fields of chemistry. Unlike GC, which is unsuitable for non volatile and thermally fragile molecules, liquid chromatography can safely separate a very wide range of organic compounds, from small molecule drug and their metabolite to peptides and proteins.

Traditional detectors for liquid chromatography include refractive index, electrochemical, fluorescence and ultra violet-visible (UV-Vis) detectors.

Some of these detectors generate two dimensional data in which signal strength is plotted as a function of time. Others, such as Diode-array UV-detectors, generate three-dimensional data. 3D data include not only signal strength but spectral data for each point in time. Mass detectors also generate 3D data. In addition to signal strength, they generate mass spectral data that can provide valuable information about the molecular weight, structure, identity, quantity and purity of a sample. Mass spectral data add specificity that increases confidence in the results of both qualitative and quantitative analyses.

There are two main challenges analysts face when testing for drug residues in veterinary products:

1. Analyte Diversity
2. Matrix Diversity

The growing number of veterinary drug residues to be tested in laboratories is hastening the search for high-throughput techniques that are more effective in tackling large numbers of samples in a limited time. Liquid chromatography along with mass spectroscopy has the capacity to satisfy this need for multi residue analysis of veterinary products.

Antibiotics are widely used in agriculture as growth enhancers and for disease treatment and control in animal feeding operations. Concerns for increased antibiotic resistance of microorganisms have prompted research into the environmental occurrence of these compounds. Assessment of the environmental occurrence of antibiotics depends on development of sensitive and selective analytical methods based on new instrumental technologies.

Liquid chromatography/mass spectrometry (LC/MS) with electrospray ionization (ESI) is a relatively new technology useful for sensitive and selective analysis of a wide variety of antibiotics and their degradation products. While ESI is a sensitive and versatile LC/MS source, variations in sample matrix composition affect ionization efficiency and detector response. Regular use of internal standards and surrogates may help compensate and correct for these variations, however, matrix effects remain a significant problem in quantitative analysis by LC/MS. Co-eluting compounds can lead to enhancement or suppression of either analyte or internal standard response. Use of solid phase extraction (SPE) with polymeric or reverse phase sorbents to concentrate antibiotics from water can provide method detection limits at low part per trillion levels.



Modification of SPE procedures, such as using a more selective sorbent, and adding a wash step, may help minimize the effect of sample matrices on ionization efficiency and detector response.

Extraction and analysis of fortified samples provides the best indication of matrix effects, however, this is not practical for large numbers of samples.

Liquid chromatography-tandem mass spectrometry, using multiple reaction monitoring (MRM), can improve quantitation by LC/MS. In MRM, target compounds are isolated and fragmented. Detection of characteristic reaction product ions (fragments) produces lower background noise and greater selectivity than molecular ion detection. The design of both ion trap and the triple quadrupole mass spectrometers permit MRM analysis. The triple quadrupole provides superior sensitivity and selectivity when compared to the ion trap. For example, instrument detection limits for a number of antibiotics measured with the ion trap ranges between 5-50 picograms (10-12 gm) while instrument detection limits of a triple quadrupole may be well below 1 picogram.

Extraction and subsequent analysis of tetracyclines using the ion trap provides method detection limits near 0.2 µg/L for a 100 mL sample of groundwater, and near 2 µg/L in 20 mL of buffered wastewater. In comparison, method detection limits estimated using a triple quadrupole are as low as 0.010 µg/L(10 pptr) in ground water.

Finally, antibiotics used in animal feeding operations may be excreted unchanged or as degradation products. Depending on their chemical characteristics, both metabolite and parent compounds may be transported into the environment. Many antibiotic degradation products have been shown to have antimicrobial effects similar to the parent compounds.

As in studies of the environmental fate of pesticides, it is often necessary to develop methods which include analysis of degradation products. Multi-residue methods often provide the maximum amount of information from the same time and effort as single component methods. Because chemical characteristics dictate extraction procedures and instrument operating conditions, however, it is necessary to develop multi-residue methods for groups of chemically similar compounds. Tetracyclines are particularly challenging in development of multi-residue methods, especially if transformation products are included.

Reversible epimerization and their tendency to form metal complexes further complicate the analysis of these compounds. For example, LC/MS analysis of a standard of anhydrochlortetracycline produces 2 or 3 epimers corresponding to well-resolved chromatographic peaks that must be summed together for quantitation of this compound in samples. The relative proportion of epimers of a single compound can vary considerably between standards and samples, and over time in the sample solution. Thus, quantitative analysis of tetracyclines and their degradation products requires control of complexation reactions and must account for epimer formation during extraction and analysis.



**Human Resource Management**

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Human Resources are an organization's greatest assets because without them, everyday business transactions, communicating through all forms of media, and dealing with customers could not be completed. Human resources and the potential they possess are key drivers for an organization's success. With globalization and technological advances, today's organizations are continuously changing. Thus, organizational change impacts not only the business but also its employees. In order to maximize organizational effectiveness, human potentials, individuals' capabilities, time, and talents must be managed and developed. Hence, the practice of human resource management development (HRM) and human resource development (HRD) works to ensure that employees are able to meet the organization's goals.

HRM means employing people, developing their resources, utilizing, maintaining and compensating their services in tune with the job and organizational requirement.

The goal of human resource management is to help an organization to meet strategic goals by attracting, and maintaining employees and also to manage them effectively.



### Mirtazapine in Beagle dogs

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**Objective:** Mirtazapine (MRT) is a human antidepressant drug mainly metabolized by the cytochrome P450 enzyme system to 8-OH mirtazapine (8-OH) and to dimetilmirtazapine (DMR). Anecdotal clinical observations suggested doses for dogs be extrapolated from human doses, but no pharmacological studies have been reported to date to support these speculations. The aim of this study was to assess the pharmacokinetics of MRT and its metabolites DMT and 8-OH to provide useful information to improve the knowledge of this drug in canine species.

**Materials & Methods:** The subjects were six healthy male Beagle dogs, aged from 1-2 years and weighing between 15 and 17 Kg. Animals were administered MRT (20 mg/tablet/dog) under fasting conditions. This dose was determined based on anecdotal evidence indicating an effective dose rate of about 1 mg/kg. A catheter was inserted into the right cephalic vein to withdrawal a blood sample at determined times after drug administration. Plasma MRT and metabolite concentrations were evaluated by HPLC-FL detection method re-validated in canine plasma according the following parameters: linearity, sensitivity, selectivity and accuracy.

**Results & Conclusion:** The oral dose range administered to the dogs was 1.17-1.33 mg/Kg. No adverse effects nor subjective criteria of distress, anxiety,...etc such as altered social interactions or vocalizations were reported. MRT and DMR were quantified in plasma from 0.25 up to 10 h, while 8-OH was quantified from 0.50 up to 10 h. The 8-OH metabolite demonstrated the highest plasma concentration.

The present study indicated that MRT has a different pharmacokinetic profile in dogs compared to that in cats and humans and caution should be paid when extrapolating doses from other species. In veterinary medicine, MRT could be useful not only for treatment of anorexia, but also in a wide range of anxiety-related conditions. It is likely to have more applications than other drugs currently available for veterinary use, many of these are only utilised for separation anxiety disorder in dogs (clomipramine, fluoxetine and trazodone). Compared with the pharmacokinetic profiles of these drugs, MRT shows a longer mean resident time and a shorter T<sub>max</sub>. These properties could be beneficial in instances of accidental overdose where the expected cardio-toxic side effects and serotonin syndrome could be mitigated for this medication. The antagonism of 5-HT<sub>3</sub> receptor by MRT may also result in an anti-emetic therapeutic effect. Its use as analgesic agent due to its effects on noradrenergic and serotonic system has been also speculated. This preliminary data could be useful in prospective studies involving MRT in canine species.

**Keywords:** Mirtazapine, Metabolites, Beagle dogs, Pharmacokinetics, Oral administration



### New Drug Delivery System

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#### ABSTRACT:

Incorporating an existing medicine into a new drug delivery system can significantly improve its performance in terms of efficacy, safety, and improved patient compliance. The need for delivering drugs to patients efficiently and with fewer side effects has prompted pharmaceutical companies to engage in the development of new drug delivery systems. Today, drug delivery companies are engaged in the development of multiple platform technologies for controlled release, delivery of large molecules, liposome, taste - masking, oral fast-dispersing dosage forms, technology for in-soluble drugs, and delivery of drugs through intranasal, pulmonary, transdermal, vaginal, colon, and transmucosal routes.

**Keywords:** liposome, controlled drug delivery, transdermal drug delivery.

#### INTRODUCTION:

Development of new drug molecules expensive and time consuming, improving safety efficacy ratio of old drugs has been attempted using different methods such as individualizing drug at controlled rate, slow delivery, targeted delivery are other very attractive methods and have been pursued very vigorously. This article reviews the work done in our country on drug delivery system. It is interesting to note that considerable work and many publications from USA, Europe are authored by Indian researchers.

Controlled rate, slow delivery and targeted delivery are some of the focus systems that are being pursued very vigorously in light of patients needs and also to succeed in today's competitive business world. In the area of targeted delivery, the colonic region of the GI tract is the one that has been embraced by scientists and is being extensively investigated over the past two decades. Targeted delivery to the colon is being explored not only for local colonic pathologies, thus avoiding systemic effects of drugs or painful trans-colonic administration of drugs, but also for systemic delivery of drugs like proteins and peptides, which are otherwise degraded and / or poorly absorbed in the stomach and small intestine but may be better absorbed from the more benign environment of the colon. This is also a potential site for the treatment of disease sensitive to circadian rhythms such as asthma, angina and arthritis. Furthermore, there is urgent need for delivery to the colon of drugs that are reported to be absorbable in the colon, such as steroids, which would increase efficiency and enable reduction of the required effective dose. The treatment of disorders of the large intestine, such as irritable bowel syndrome (IBS), colitis, Crohn's disease and colon disease, where it is necessary to attain a high concentration of the active agent, may be efficiently achieved by colon-specific delivery. The necessity and advantages of a colon-specific drug delivery system (CDDS) have also been extensively reviewed elsewhere in the literature.

#### Transdermal drug delivery system

The transdermal drug delivery system has potential advantage of avoiding hepatic first pass metabolism, maintaining constant blood levels for longer period of time, decrease side effects, decrease gastrointestinal effect that occur due to local contact with gastric mucosa and improved compliance. The release pattern from TDDS is studied by in vitro (ex vivo) models using artificial membranes or animal or cadaveric skin. The hairless guinea pig and Brattleboro rat appear to be good models for investigating skin/ transdermal drug delivery system, in vivo.



Lontophoresis involves transport of ionic (charged) molecule into a tissue by passage of a direct electric current through an electrolyte solution containing ionic molecule to be delivered using an appropriate electrode polarity, and enhancement of transport of high molecular weight peptides and nonelectrolytes due to the indirect effect of electric current I.e. coupled flow of water (ion to hydrokinesis). The relative conductivity of skin is proportional to its water content; stratum corneum is the major barrier for permeation of ionic compounds. Conventional direct current (dc) iontophoresis inevitably develops a skin polarization potential which reduces the efficacy of iontophoretic transdermal delivery. It may also cause efficacy of iontophoretic transdermal delivery. It may also cause irritation and burns. A prolonged iontophoretic delivery therefore cannot be used. These limitation scan be overcome by using depolarizing or pulsatile current.

### **Liposomal and targeted drug delivery system**

Liposomes are concentric bilayered structures made of amphipathic phospholipids and depending on the number of bilayer, liposomes are classified as multilamellar (MLV), small unilamellar (SUVs) or large unilamellar (LUVs). They range in size from 0.025 $\mu$ -10 $\mu$  in diameter. The size and morphology of liposomes is regulated by the method of preparation and composition. Liposomes are used for delivery of drugs, vaccines and genes for a variety of disorders.

-Infectious disease

-Anticancer drugs

-Lung specific drug delivery

-Targeting to brain

-Transdermal delivery

### **Other controlled drug delivery system**

Extended release, slow release and sustained release preparation have been developed by pharmaceutical industry and pharmacy department and investigated in vitro for release pattern and in vivo for bio – equivalence.

### **Oral**

There is a great need in oral delivery of protein and peptide drugs, suitable devices for delivering the therapeutic agent incorporated microspheres selectively in the intestine. Gelatin capsule were coated with various concentrations of sodium alginate and cross – linked with appropriate concentrations of calcium chloride and tested in vitro for resistance to gastric and intestinal medium. Gelatin capsule coated with 20% w/v of the polymer, which gave the most promising result in vitro, were evaluated in human volunteers for their in vivo gastro intestinal tract behavior. The radiographical studies show that while the un-coated gelatin capsules disintegrated in the stomach within 15 min of ingestion, the alginate coated gelatin capsules remained intact as long as they were retained in the stomach (up to 3 h) and then migrated to the ileocecal region of the intestine and disintegrated. Vanarase and Nagarsenkar prepared pellets of 1mm and 1.65 mm size of prochlorperazine maleate using a modern pelletization technique. The pellets were coated with ethylcellulose and evaluated for in vitro release, using USP dissolution apparatus.

### **Parenteral**

Kushwaha used a blend of synthetic polymer polyvinyl alcohol and natural macromolecule gum Arabic and found that duration and release of drug depends on the amount of drug loaded in the matrix and solubility of the drug in the matrix and the release medium. The advantage of this system is that the release kinetics of the drug from the system can be tailored by adjusting the plasticizer, homopolymer and cross linker composition. In vitro there has been extensive research on drug delivery by biodegradable polymeric devices since bioresorbable surgical sutures entered the market two decades ago. Among the different classes of biodegradable polymers, the



thermoplasticaliphatic poly (esters) such as poly (lactide)(PLA), poly (glycolide) (PGA), and especially the copolymer of lactide and glycolide referred to as poly (lactide - co - glycolide)(PLGA) have generated tremendous interest because of their excellent bio-compatibility , biodegradability , and mechanical strength.They are easy to formulate into various devices for carrying a variety of drug classes such as vaccines , peptides , proteins and micromolecules .Most importantly ,they have been approved by the united states food and drug Administration (FDA)for drug delivery.

### Dental product

Somayaji et al used an ethylcellulose strip as delivery medium for tetracycline and metronidazole to reduce sub gingival microorganisms in periodontal pockets. Patients were given supragingival scaling and divided into 5 groups, depending on the length of time the medication was in place .sites were marked for tetracycline , metronidazole , and placebo .Sites were wiped and isolated ,and baseline microbiology samples were taken for gram staining and culture methods .After treatment , subgingival microbiological samples were taken again. The ethyl cellulose strips were removed and analyzed for any remaining drug. Results showed that tetracycline and metronidazole could both be applied locally to periodontal sites using ethyl cellulose strips and markedly suppress the subgingivalbacteria over a period of several days.The tetracycline showed a faster release ;however ,the metronidazole required a lesser concentration to achieve complete reduction of the subgingivalflora.A saliva activated bio- adhesive drug delivery system was developed for lidocaine hydrochloride and compared its effect with topical gel preparation in dentistry .It was found that DDS adhered to gingival within a minute and produced peak effect in 15 minutes and produced greater depth of anesthesia than the marketed topical gel.

### Colon specific drug delivery

Specific targeting of drugs to the colon is recognized to have several therapeutic advantages. Drugs, which are destroyed by the stomach acid and/ or metabolized by pancreatic enzymes, are slightly affected in the colon, and sustained colonic release of drug can be useful in the treatment of nocturnal asthma, angina and arthritis. Treatment of colonic disease such as ulcerative colitis, colorectal cancer and Crohns disease is more effective with direct delivery of drugs to the affected area. Likewise, colonic delivery of vermicides and colonic diagnostic agents require smaller doses.

### Conclusion

Pharmaceutical development of drug delivery system is being pursued enthusiastically in many laboratories in india .These are being investigated in vitro for release pattern and in some cases in vivo in animals for pharmacokinetics but less frequently for efficacy . There is a paucity of data on clinical studies and utility of the DDS in patients.It is necessary that pharmacologists should be involved in the investigation of pharmacodynamics of DDS if the products have reached their meaningful outcome- the clinical use.

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### Effects of antioxidants in experimental hepatotoxicity and nephrotoxicity

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Antioxidants are substances that protect cells against the effects of free radicals. Free radicals are molecules produced when body breaks down food, or by environmental exposures like tobacco smoke, toxins, drugs and radiation. Free radicals can damage cells, and may play a role in heart, liver, kidney disease, cancer and other diseases. Antioxidants include some vitamins (such as vitamins C and E), some minerals (such as selenium), and flavonoids, which are found in plants. The best sources of antioxidants are fruits and vegetables. Antioxidants are found in many foods. These include fruits and vegetables, nuts, grains, and some meats, poultry and fish.

Several studies were carried and are continuing for evaluation protective effects of natural antioxidants especially plant extracts in liver and kidney diseases. At present paper, I discussed some our studies and others for answer to these questions: is that needed focus on these kinds of researches? Where is end of these studies? Which antioxidant is more benefit? and ...

The protective effect of vitamin E is related to its antioxidative function. Because the oxidative stress is important factor for myoglobinuric acute renal failure, renal malondialdehyde (MDA) levels, reduced glutathione levels and enzymatic activity of catalase, glutathione reductase and superoxide dismutase is determined. The other antioxidant such as sodium benzoate (a second hydroxyl radical scavenger), Melatonin, n-aringin (a bioflavonoid with antioxidant potential), quercetin (a bioflavonoid), carvedilol (an antihypertensive drug) and deferoxamine (an iron chelator) had protective effect (5, 11).

Melatonin or N-Acetyl-5-methoxytryptamine, the main secretory product of pineal gland, participates in many physiological functions due to its efficacy as a free radical scavenger and indirect antioxidant (12).

Silymarin, an antioxidant flavonoid complex derived from the herb milk thistle (*Silybum marianum*), has long been used in the treatment of liver diseases. This property seems to be due to its ability to scavenge free radicals and to chelate metal ions (1, 3, and 9). In our previous study, administration of silymarin caused a generally protective and ameliorative effect against gentamicin-induced nephrotoxicity in dogs (3).

The role of oxidative stress in acetaminophen-induced hepatotoxicity and preventive and therapeutic effect of natural antioxidant was evaluated in some studies. For example, the hepato protective effect of aqueous ethanol extract of *Zingiber officinale* against acetaminophen -induced acute toxicity is mediated either by preventing the decline of hepatic antioxidant status or due to its direct radical scavenging capacity. The ethanolic extract of *Cuscuta chinensis* can prevent hepatic injuries of acetaminophen -induced hepatotoxicity in rats and this is likely to be mediated through its antioxidant activities. Similar results were seen in the *Phyllanthus niruri* administration in mice. The co-administration of vanadium had preventive effect on acetaminophen -induced hepatotoxicity in our study (2).



The results of our study in cats showed that silymarin has protective effect similar to N-acetylcysteine at least in prophylaxis and treatment of acetaminophen-induced hepatotoxicity in cats and might provide a useful therapy for intoxication patients (7).

Study shows that silymarin has a protective effect similar to deferoxamine on controlling serum iron concentration and liver injury, which is induced by iron overload (1). It seems that this efficacy of silymarin can be evaluated in clinical trials.

Treatment with naringin attenuated the alterations in the renal and urine markers, decreasing lipid peroxidation markers, increasing the antioxidant cascade and decreasing the nickel concentration in blood and kidney. All these changes were supported by histopathological observations. These findings demonstrate that naringin exerts a protective effect against nickel toxicity (13).

Heavy metal toxicity represents an uncommon but clinically significant medical condition, which if unrecognized or inappropriately treated results in significant morbidity and mortality. Symptom picture of mercury toxicity is characterized mainly by a series of renal disorders. Mechanism of inorganic mercury toxicity includes production of reactive oxygen species (ROS) capable of damaging lipids in membrane, proteins or enzymes in tissues, and DNA to induce oxidative stress as balance between generation, and elimination of ROS is essential for maintaining the functional integrity of a cell. Mitigation of endogenous mercury depends as a part on the presence of antioxidants such as glutathione - most abundant intracellular non-protein thiol that plays a central role in the maintenance of cellular redox status by quenching free radicals generated during oxidative stress (14). Simultaneous administration of quercetin plus gentamicin protected kidney tissues against nephrotoxic effects of gentamicin (15).

Curcumin, a yellow pigment from *Curcuma longa*, is a major component of turmeric and is commonly used as a spice and food-coloring agent. The desirable preventive or putative therapeutic properties of curcumin have also been considered to be associated with its antioxidant and anti-inflammatory properties. Because free-radical-mediated peroxidation of membrane lipids and oxidative damage of DNA and proteins are believed to be associated with a variety of chronic pathological complications such as cancer, atherosclerosis, and neurodegenerative diseases, curcumin is thought to play a vital role against these pathological conditions (16).

In conclusion, it is needed a meta-analysis on studies which carried on protective effect of antioxidants on experimental hepatotoxicity and nephrotoxicity to prevention of parallel researches.

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**2<sup>nd</sup> International Congress of Veterinary Pharmacology**

**دومین کنگره بین المللی داروشناسی دامپزشکی**

# Abstracts

**Editor: Dr. N. Afshar Mazandaran**



### Propranolol hydrochloride and activated charcoal as a treatment of Experimental Oleander Poisoning in sheep

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**Objectives:** This study was performed to evaluate the effect of propranolol hydrochloride and activated charcoal in the treatment of *Nerium oleander* intoxication in sheep. Oleander is an evergreen shrub or small tree from 5 to 25-ft tall containing gummy sticky sap in the dogbane family Apocynaceae. All parts of the plant are toxic and toxicity remains in dried leaves. The basis for physiological action of *N. oleander* cardenolides is similar to that of classic digitalis glycosides, i.e. inhibition of membrane Na<sup>+</sup>/K<sup>+</sup> ATPase pump, resulting in deficit in conduction of electrical potential, leading to ventricular arrhythmias and eventually loss,

**Materials & Methods:** Seven male native Iranian sheep (8-12 months) were randomly divided into two groups, 5 treatment and 2 controls. Sheep of both groups were administered the lethal dose of 110 mg/kg body weight of dried oleander leaves. Animal in control group died within 41 to 56 hours after dosing of the plant. Clinical signs of toxicosis were developed within 60 minutes after dosing of the plant, such as distress, teeth grinding, anorexia, colic, vocalization, polyuria, moderate rumen distention, tachypnea and depression. All sheep in treatment group, one hour after dosing with oleander leaves, took activated charcoal (5 gr/kg).

**Results & Conclusion:** Three sheep in treatment group did not show any dysrhythmia and remained alive and without receiving any drugs. One sheep of treatment group took the propranolol hydrochloride in regime but died after 80 hours. Propranolol hydrochloride in last sheep of treatment group changed ventricular arrhythmias to sinus rhythm. This sheep remained alive after taking the antidysrhythmia drugs. The result suggested that propranolol hydrochloride and activated charcoal can be effective in treatment of acute oleander toxicosis in sheep.

**Keywords:** *Nerium oleander*, cardiac glycosides, propranolol hydrochloride, activated charcoal, sheep.

### Effects of aqueous extracts of St John's wort (*Hypericum perforatum*) leaf on hematological, some biochemical and survival of rainbow trout under thermal stress

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**Objectives:** Stress is an organismic physiological nonspecific response against various external and internal stimuli. However, an excessive response will inhibit immunity in fish resulting pathological changes, infectious diseases and even mortality. High temperature is the most important stress for cold water specially rainbow trout. The use of plant extracts for enhancing growth performance, improvement immunity and control of infectious diseases are a common subject. *Hypericum perforatum* antimicrobial and antiviral activities were reported. The aim of this study was to evaluate the anti stress, hematological and biochemical effects and impact on survival rate of rainbow trout under thermal stress using *Hypericum perforatum*.

**Materials & Methods:** One hundred twenty juvenile rainbow trout, with initial weight of 50 ± 5 g, were distributed in six fiberglass tanks and kept for 45 days under thermal condition (22 °C). On 18 and 34 days, the fish were treated with St John's wort extract at 250, 500 and 750 ppm for 5 days. After 24h, blood samples were taken from 5 fish of each treatment. The fish were anaesthetized using clove extract and two types of blood samples were taken (heparinized and non-heparinized).

**Results & Conclusion:** Total white and red blood cells, hemoglobin, hematocrit and lymphocytes were significantly increased in 500 and 750 ppm doses. The blood indices of MCV, MCH and MCHC showed no variation in treatment and control groups. Albumin was found significantly higher in all treatment groups (250, 500 and 750 ppm) compared to the control. Also, total IgM level was increased and the highest found at 500ppm. The total protein was found to be significantly higher in doses of 500 and 750 ppm than control groups. The C3 and C4 counts were found higher at 500 and 750 ppm. The highest levels of Aspartate Amino Transferase (AST) and Alanine Amino Transferase (ALT) counts were found at second sampling in 750 ppm group. The highest survival rate was recorded in 500 ppm group. The results showed that St John's wort extract increased total IgM level and recovered immune system, not for 750 ppm. Therefore, the best dose of St John's wort extract is 500 ppm.

**Keywords:** St John's wort, *Hypericum perforatum*, rainbow trout, thermal stress.



### Pharmacokinetics of Long acting Amoxicillins in Buffalo Calves

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**Objectives:** This study was designed to compare the pharmacokinetic parameters of two long acting preparations of amoxicillin in buffalo calves.

**Materials & Methods:** Sixteen buffalo calves, were divided into two groups of A and B. In first phase, group A and group B were received intramuscularly Farmox L.A and Clamoxyl L.A (15mg/kg bodyweight) respectively. In the second phase, after a washout period of 2 weeks, group A that already received treatment of Farmox L.A was administered by Clamoxyl L.A and vice versa. 5ml blood was collected prior to drug administration as control and after administration at 0.166,0.33,0.75,1.0,1.5,2.0,3.0,4.0,6.0,8.0,12.0,24.0,36 and 48.0 hours.

**Results & Conclusion:** Analysis was performed using HPLC on Mobile phase, of phosphate buffer and Acetonitrile (95:5) pumped at a flow rate of 1 ml/min in C18 column at the wavelength of 230nm on Diode Array Detector. All Pharmacokinetic parameters were calculated using pharmacokinetics software APO (pharmacological analysis MW /PHARM version 3.02). Pharmacokinetic parameters of both preparations were compared. It was observed that there was no significant difference in pharmacokinetic parameters of Clamoxyl L.A and Farmox L.A after intramuscular administration and both products are bioequivalent in their rate and extent of drug absorption.

**Keywords:** Amoxicillin, Buffalo Calves, Bio equivalence, HPLC, Chemical equivalence.

### Effects of *Carthamus tinctorius* L. extract on placental histomorphology and survival of mouse neonates

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**Objectives:** The flowers of the *Carthamus tinctorius* L are cheaper than saffron and used to provide color and flavor in the food industry. The side effects of this plant on the placentation and neonate have not been investigated. The aim of this study was to clarify the structural changes of the placenta, abortion rate and survival of neonates after *Carthamus tinctorius* L. administration in mice.

**Materials & Methods:** The aqueous extracts from *Carthamus tinctorius* L. (100 mg/kg/day) was administered to pregnant mice subcutaneously from the first day of pregnancy to Day 7. The number of embryos and weights of whole uteri were measured on Days 10 and 12. Morphological changes in the placentae were examined using light microscopy on the corresponding days of pregnancy. The number of neonates was also counted. Survival rates were periodically calculated for neonates from the first day after parturition to P-Day 68.

**Results & Conclusion:** The number of embryos and weight of the uterus on Days 11 and 12 were significantly decreased upon extract injection. The proportion of the labyrinthine zone per whole placenta in the plant treated mice decreased comparing with the controls. The intervillous spaces of the placenta were found narrower in experimental group. Degenerative changes were found in the trophoblastic giant cells and spongiotrophoblast layers of the experimental group. The number of extract administrated mouse neonates was drastically reduced within 5 days after birth. The results suggested that extract of *Carthamus tinctorius* L is toxic and disrupts placental functions and leads to mortality of neonates.

**Keywords:** *Carthamus tinctorius* L., placenta, histomorphology.



### Efficacy of Metoclopramide, Promethazine, Vitamin B6 and Ondansetron on Emesis in Cats sedated with Xylazine HCl

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**Objectives:** Xylazine-induced emesis occurs frequently in cats increasing the risk of aspiration pneumonia. The aim of the present study was to investigate the efficacy/safety of prophylactic administration of metoclopramide, promethazine, vitamin B6 and ondansetron to prevent nausea and vomiting and its influence on sedation in cats sedated with xylazine HCL.

**Materials & Methods:** Eight healthy adult cats were employed. The effects of four dosages of metoclopramide, 3 dosages of promethazine, Vitamin B6 and Ondansetron were evaluated against saline solution as placebo, both injected 1 hour before administration of xylazine (0.66 mg/kg, IM). Saline was administered to cats (day 0) followed by sequentially increasing doses of each medications at 1 week intervals. After xylazine injection, all cats were carefully observed for 30 minutes to record the frequency of emesis and the duration until the onset of the first emetic episode. The influence of each medication on xylazine-induced sedation was studied too.

**Results & Conclusion:** Prior treatment with each dosage (0.2, 0.4, 0.6 and 0.8 mg/kg) of metoclopramide significantly reduced the frequency of emetic episodes ( $p=0.012$ ,  $p=0.007$ ,  $p=0.018$  and  $p=0.003$  respectively). Frequency of emetic episodes significantly decreased with all three dosages of vitamin B6 (5, 10 and 20mg/kg) with P values of 0.014, 0.01 and 0.001 respectively. Prior treatment with 2 and 4 mg/kg of promethazine reduced significantly the frequency of emesis ( $p=0.036$  and  $p=0.008$  respectively). Frequency of emetic episodes decreased significantly with all three dosages of ondansetron (0.2, 0.4 and 0.8mg/kg) with P values of 0.014, 0.01 and 0.001 respectively. Prophylactic administration of any above medications prior to xylazine injection didn't alter the duration until the onset of the first emetic episode, nor the duration until the onset of sedation. It is concluded that metoclopramide, promethazine, vitamin B6 and ondansetron significantly decrease the frequency of emetic episodes induced by xylazine without compromising sedative effects in cats. All the above medications could be used as a prophylactic antiemetic in cats treated with xylazine hydrochloride.

**Keywords:** Metoclopramide, Promethazine, B6, Ondansetron, Xylazine, Cat, Emesis.

### Antimicrobial resistance and K99 (F5) gene possession in generic *Escherichia coli* isolated from different age groups of diarrheic and non-diarrheic newborn dairy calves in Mashhad, Iran.

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**Objectives:** This study was conducted to describe antimicrobial resistance in fecal generic *Escherichia coli* isolated from newborn dairy calves and also to investigate relationship between antimicrobial resistance and possession of K99 gene by *E. coli* isolates, diarrhea and age of the calf.

**Materials & Methods:** Seven dairy farms in Mashhad were visited on weekly basis and fecal samples were collected from a total of 95 diarrheic and 95 non-diarrheic newborn calves as assessed by a scoring system. Fecal samples were all cultured for *Escherichia coli* and the isolated bacteria were tested for the presence of K99 gene and antimicrobial susceptibility using PCR and disc diffusion respectively.

**Results & Conclusion:** Out of 190 isolates, 22 (11.6%) isolates possessed K99 genes and 87.4 % of isolates were found multiresistant against antimicrobial agents. Higher resistance rates were detected for oxytetracycline (86.3%), amoxycillin (79.5%), spectinomycin (78.9%), trimethoprim-sulphamethoxazole (76.3%) and ampicillin (71.6%) respectively. Comparisons between K99 positive and K99 negative isolates using binary logistic regression showed that isolates possessing K99 gene were significantly more resistant to neomycin and trimethoprim/sulfamethoxazole and significant differences were detected between different age groups with regard to the resistance to neomycin, trimethoprim/sulfamethoxazole, ampicillin, gentamycin and enrofloxacin and for all of these antimicrobial agents the least resistance was observed in bacteria isolated from 22-30 days old age group. No significant differences in terms of antimicrobial resistance were detected between diarrheic and non-diarrheic animals. In conclusion, antimicrobial susceptibilities against some antimicrobial agents in *Escherichia coli* differed with regard to possessing of K99 gene and age of the newborn dairy calves.

**Keywords:** Newborn dairy calves, *Escherichia coli*, antimicrobial resistance, K99 gene, age, diarrhea.





### Effect of Ivermectin on Macrophage Engulfment and Delayed Type Hypersensitivity in Broilers

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**Objectives:** Ivermectin is considered to enhance the immune response in human and animals. An experimental model of broiler chickens was designed and developed using ivermectin to evaluate its immunomodulatory response at different doses. Experiment was done on macrophage engulfment percentage and the skin thickness in the broilers.

**Materials & Methods:** A total of sixty (600-700 grams), three weeks old broiler chickens were used for the experiment. Commercial feed and water were given *ad libitum*. They were divided into six major groups A through F, having ten broilers in each group. Groups B, C, D, E and F were given ivermectin at the dose rate of 0.15, 0.3, 1, 3 and 5 mg/kg body weights of birds, respectively. Whereas group A was kept as control, namely, without ivermectin. Each group was further divided into two sub-groups (1 through 2) having five broilers in each group.

**Results & Conclusion:** Macrophage engulfment percentage, in terms of phagocytosis was significantly high in groups E and F. The mean skin thickness values in broilers of Group F (Highly medicated) was significantly ( $P < 0.05$ ) higher than in broilers of all the groups. Skin sensitivity at 24 hrs and 48 hrs was highest in the broilers administered with 5 mg/kg body weight (the highest dose) of ivermectin. These results were dose dependent. Our study indicated that in addition to effectively control parasites, immunostimulatory effect of ivermectin can also be achieved in broilers for the treatment of disease problems with immunosuppression, the immunomodulatory effects of the ivermectin may suggest an alternative approach in these disease problems.

**Keywords:** Ivermectin, Immunomodulatory, Macrophage engulfment assay, Delayed type hypersensitivity, Macrophages, Broilers.

### Mirtazapine in Beagle dogs

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**Objectives:** Mirtazapine (MRT) is a human antidepressant drug mainly metabolized by the cytochrome P450 enzyme system to 8-OH mirtazapine (8-OH) and to dimethylmirtazapine (DMR). Anecdotal clinical observations suggested doses for dogs be extrapolated from human doses, but no pharmacological studies have been reported to date to support these speculations. The aim of this study was to assess the pharmacokinetics of MRT and its metabolites DMT and 8-OH to provide useful information to improve the knowledge of this drug in canine species.

**Materials & Methods:** The subjects were six healthy male Beagle dogs, aged from 1-2 years and weighing between 15 and 17 Kg. Animals were administered MRT (20 mg/tablet/dog) under fasting conditions. This dose was determined based on anecdotal evidence indicating an effective dose rate of about 1 mg/kg. A catheter was inserted into the right cephalic vein to withdraw a blood sample at determined times after drug administration. Plasma MRT and metabolite concentrations were evaluated by HPLC-FL detection method re-validated in canine plasma according the following parameters: linearity, sensitivity, selectivity and accuracy.

**Results & Conclusion:** MRT and DMR were quantified in plasma from 0.25 up to 10 h, while 8-OH was quantified from 0.50 up to 10 h. The 8-OH metabolite demonstrated the highest plasma concentration. The present study indicated that MRT has a different pharmacokinetic profile in dogs compared to that in cats and humans and caution should be paid when extrapolating doses from other species. In veterinary medicine, MRT is likely to have more applications than other drugs currently available for veterinary use; many of these are only utilized for separation anxiety disorder in dogs (clomipramine, fluoxetine and trazodone). Compared with the pharmacokinetic profiles of these drugs, MRT shows a longer mean resident time and a shorter T<sub>max</sub>. These properties could be beneficial in instances of accidental overdose where the expected cardio-toxic side effects and serotonin syndrome could be mitigated for this medication. The antagonism of 5-HT<sub>3</sub> receptor by MRT may also result in an anti-emetic therapeutic effect. Its use as analgesic agent due to its effects on noradrenergic and serotonergic system has been also speculated. This preliminary data could be useful in prospective studies involving MRT in canine species.

**Keywords:** Mirtazapine, Metabolites, Beagle dogs, Pharmacokinetics, Oral administration.



### Evaluation of Oxidative Stress Induced by Excess Methionine intake in Rat

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**Objectives:** Excess dietary methionine can elevate plasma homocysteine. Methionine is the precursor of homocysteine that was implicated as a cause of occlusive vascular disease. There are many reports that revealed hyperhomocysteinemia induces free radicals production followed by lipid peroxidation. Oxidative stress is a causative factor of endothelial dysfunction and plays an important role in the pathophysiology of several vascular diseases such as atherosclerosis. On the other hand methionine showed antioxidant properties in various models of oxidative stress. Antioxidant effects of methionine lead to the reduction of lipid peroxidation. In this study we evaluated the effects of excess methionine on oxidative stress.

**Materials & Methods:** 36 Male rats were selected and maintained under a controlled condition and at optimum temperature. Animals were divided into three groups including control, low dose and high dose methionine receiving and had free access to tap water and standard and purified diets. Control group was given standard diet and treatment groups received diets containing graded dosage of methionine (1.2 and 2.4% by weight in the diet, as low and high dose groups). Before and after one month of the intake of excess methionine blood samples were taken and GSH-Px, SOD & catalase, TAC, malondialdehyde, homocysteine, TG, Cho, LDL, HDL were determined.

**Results & Conclusion:** The results of this study showed that excess methionine intake caused in significant increase in serum homocysteine, Cholesterol, LDL-C, Tg, Malondialdehyde concentrations in comparison with control group ( $P < 0.001$ ). Significant reduction in activity of GSH-Px, SOD and catalase activities ( $P < 0.001$ ) and also reduction of TAC in methionine intake group ( $P < 0.01$ ) showed that excess methionine caused in oxidative stress. In conclusion the results of this study showed that excess methionine intake can induce oxidative stress via increasing homocysteine concentration.

**Keywords:** Methionine, Homocysteine, Oxidative Stress.

### Red Clover: An alternative for hormone replacement therapy with antioxidant effects

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**Objectives:** Red clover contains important isoflavones such as daidzein, genistein, biochanin A or formononetin, which exert estrogenic effects in human and animals. Recent studies showed that these compounds are not only could be used in monopausal complaints but also may be useful in the prevention and treatment of chronic diseases. In this study we aimed to clarify both the estrogenic and antioxidant effects of hydroalcoholic extract of red clover.

**Materials & Methods:** Following the sample collection (red clover, *Trifolium pretense* L.) and hydroalcoholic extraction from flowers and leaves, the estrogenic potency of either part was assessed using E-screen bioassay method on MCF-7 cells. Moreover, DPPH scavenging activity and total phenol content of mentioned parts were also determined.

**Results & Conclusion:** Bioassay results showed that both extracts from flowers and leaves induced cell proliferation in a dose dependent manner. Results demonstrated that flowers exert slightly high estrogenic effect on MCF-7 proliferation. These results were in accordance with DPPH activity of various extracts as at corresponding concentration DPPH scavenging activities for flowers and leaves were found as 43.44 and 22/29 % respectively. By contrast the total phenol content of the leaves extract was found significantly ( $P < 0.05$ ) higher than that of flowers. Our data suggested that in addition of having known estrogenic property, various parts of red clover contains compounds with antioxidant effects. Moreover, the hydroalcoholic extract of red clover might be considered as a reliable source of alternative hormone replacement agents with antioxidant property which is essentially needed in chronic disease in particular in elder humans or animals.

**Keywords:** Isoflavones; E-screen assay; DPPH; Total phenol; MCF-7 cells.



### Pharmacokinetic Study of Ketoprofen in Healthy Donkeys

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**Objectives:** The objective of this study was to evaluate the pharmacokinetic parameters of ketoprofen in clinically normal donkeys.

**Materials & Methods:** Eight healthy donkeys were selected. Each animal was received 3mg / Kg dosage of Ketoprofen i.v. and blood samples were collected up to 24 hours from jugular vein. Heparinized vacutainer were used for collection of 3-5ml blood samples. Plasma was separated after centrifugation at 4000 rpm and stored at -20°C till analyzed. Ketoprofen levels in plasma were analyzed using a validated method by a high performance liquid chromatography (HPLC).

**Results & Conclusion:** Pharmacokinetic parameters were calculated including AUC 17.02±2.61 mg.h/ml, AUC polyexponential 15.83±2.64 mg.h/ml, AUC Trapezoidal 14.67±2.21 mg.h/ml, Clearance(CI) 0.20±0.02 l/h, ke 1.42±0.54, k12 2.29±1.33, k21 0.97±0.11 and MRT 2.44±0.17. The elimination half-life ( $t_{1/2\beta}$ ) was 2.21 ±0.49h, the steady state volume of distribution (Vss) was 0.47±0.11mL/kg, volume of distribution (Vd) was 0.61±0.16 mL/kg, and clearance (CI) was 0.20±0.07mL/hr. The major differences between pharmacokinetic parameters of donkeys and other species stress the importance in establishing pharmacokinetic parameters of a particular drug in individual species rather than transposing data between species, otherwise treatment failures or toxicosis might occur.

**Keywords:** Pharmacokinetic, Ketoprofen, Plasma, Donkeys, HPLC.

### Anthelmintic Resistance in Gastrointestinal Nematodes of Sheep in Iran

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**Objectives:** More than sixty species of nematodes live in the gastrointestinal tract of sheep in Iran, among which *Teladorsagia circumcincta*, *Marshallagi marshalli*, *Haemonchus contortus* and *Trichostrongylus* Spp are prevalent and their pathogenicity is much more than the other species. Several anthelmintics are used to treat gastrointestinal nematodes of sheep among which albendazole and levamisole are the most commonly used compounds. Development of resistance of gastrointestinal nematodes of sheep mainly, *Teladorsagia circumcincta*, *Haemonchus contortus* and *Trichostrongylus vitrinus* were studied under field and laboratory conditions.

**Materials & Methods:** Field trials were carried out in Khuzestan on 15 sheep flocks reared under mountainous and plain conditions. On each flock, three groups of 15 sheep including untreated control groups and treated groups (deworming with levamisole; 8mg/kg and albendazole; 5mg/kg) were selected. The trend of resistance development was assessed through fecal egg count reduction test (FECRT), fecal culture and autopsy. Meanwhile PCR-RFLP was performed on *H. contortus* collected from the autopsied sheep. To detect albendazole resistance of *T. circumcincta*, who believe it occurs by point mutation at position 200 of isotype 1  $\beta$ -tubulin gene (substitute phenylalanine to tyrosine), an innovative restriction site created PCR-RFLP (RSC PCR-RFLP) was developed. Furthermore, because of importance of haemonchosis, a newfound RSC PCR-RFLP was developed in order to evaluate the point mutations at codons 167 and 200 of isotype 1  $\beta$ -tubulin gene of *H. contortus* of sheep from three different climatic areas of Iran.

**Results & Conclusion** The results of field trials showed the development of resistance in 27.7% of the studied flocks. *T. circumcincta*, *T. vitrinus* were found to be resistant to levamisole and *T. circumcincta*, *M. marshalli* but not *H. contortus* to albendazole. The RSC PCR-RFLP showed that 8 of 35 *T. circumcincta* from untreated sheep were BZ<sup>SS</sup> homozygote and the rest (27) were BZ<sup>RS</sup> heterozygote. From 40 worms collected from sheep treated with albendazole 5 were BZ<sup>RR</sup> homozygote, whereas the rest (35) were BZ<sup>RS</sup> heterozygotes. Supplementary molecular studies on *H. contortus* collected from three different climatic areas of Iran showed no point mutation at codon 167 and 200 of  $\beta$ -tubulin gene and all specimens examined were BZ<sup>SS</sup> homozygote.

**Keywords:** Anthelmintic Resistance, Gastrointestinal Nematodes, Sheep, RSC PCR-RFLP,



### Protective effects of *Salvia verticillata* during Serum/Glucose Deprivation in PC12 cells

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**Objectives:** The serum/glucose deprivation (SGD) induce cell injury in cultured rat Pheochromocytoma (PC12) cell line represents a useful in vitro model for studying the induction of cell injury following brain ischemia and other neurodegenerative disorders. *Salvia verticillata* (purple rain or lilac sage), a Eurasian species used locally in folk medicine and as a garden ornamental, has been reported as an antioxidant and due to its polyphenols, volatile oils and diterpenoids contain. To elucidate the neuroprotective in vitro effects of *Salvia verticillata*, we have evaluated alcoholic/aqueous extract of this plant on viability of cultured PC12 cells under SGD condition.

**Materials & Methods:** We have studied the protective effects of alcoholic/aqueous (70)/30 extract of *Salvia verticillata* on rat PC12 cells during the SGD model in a DMEM medium. PC12 cells were grown in DMEM media, supplemented with 10 % FCS, and 1% antibiotic, containing 100 IU/ml penicillin and 100 µg/ml streptomycin. After seeding overnight, cells were deprived from serum/glucose for 6 to 12 hrs. In treatment groups, cells were pre-incubated with alcoholic/aqueous extract for 2 hrs before inducing SGD, in which the same treatments were applied. Two way ANOVA followed by Tuckey-kramer as post hoc test.

**Results & Conclusion:** Addition of the alcohol free *Salvia verticillata* extract increased viability of the cells in a concentration-dependent manner as revealed by an absorbance increase percentage in MTT assay from  $18.78 \pm 3.95$  in SGD group to  $13.19 \pm 0.52$ ,  $17 \pm 0.63$ ,  $23.43 \pm 0.42$ ,  $28.42 \pm 2.89$ ,  $66.06 \pm 3.32$  and  $97.62 \pm 8.41$  respectively (n=8). These findings if shown to be true during in vivo studies as well, can rise new hope in treatment of different oxidative stress mediated diseases.

**Keywords:** *Salvia verticillata*, antioxidant, rat, PC12, Oxidative stress

### In-Vitro and In-Vivo antibiotic trials in naturally Strangles affected Mules in Pakistan

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**Objectives:** Strangles is an infectious malady of equidae characterized by upper respiratory tract infection, dyspnea, anorexia, regional suppurative lymphadenitis and causes high morbidity and low mortality. Considering the significance and utilization of equines in our country and the substantial losses rendered by Strangles, the present study was designed to evaluate the efficacy of various antibiotics under laboratory and field conditions.

**Materials & Methods:** In-vitro testing of Antibiotics: In-vitro antibiotic sensitivity of *S. equi* to various antibiotics (Procaine penicillin, ceftiofur Na, cephradine, erythromycin, ampicillin, tetracycline, chloramphenicol, sulfamethoxazole, trimethoprim+sulfadiazine and gentamycin.) was determined by Kirby-Bauer Antibiotic Sensitivity Test. In-vivo Antibiotic Trials based on the above in-vitro sensitivity test four top ranking antibiotics were selected. Out of 250 mules forty mules positive for strangles were randomly divided into four groups A, B, C and D each comprising of 10 mules. The efficacy of antibiotics was checked on the basis of disappearance of clinical signs.

**Results & Conclusion:** The results of in-vitro antibiotic sensitivity test revealed, that *S. equi* was sensitive to Procaine penicillin followed by ceftiofur Na, cephradine, erythromycin, ampicillin, tetracycline, chloramphenicol, sulfamethoxazole, trimethoprim + sulfanomides and gentamycin in mules whereas the results of in-vivo antibiotic trials revealed that mules suffering from strangles without abscess formation were sensitive to Procaine penicillin followed by ceftiofur Na, cephradine and erythromycin whereas those mules who developed abscess were ineffective. From the results of present study it is concluded that Procaine penicillin is most effective ceftiofur Na and in-vivo antibiotic followed by ceftiofur Na and cephradine.

**Keywords:** Strangles, mules, ProcainePencillin, Ceftiofur Na, and Chloramphenicol.



### Effects of combined usage of Masoten and Levamesole Hydrochloride on external parasites of farmed fish

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**Objectives:** Masoten contains 80% of effective Trichlorofon which is widely used as a disinfectant in removing the external parasites of farmed fishes. Although it's over use may result in limiting the Plankton development and lowered dissolved oxygen, the suitable dosage of the drug can prove effective in controlling the fish parasites without any destructive environmental impacts. Levamesole hydrochloride is commercially known as levasol using for elimination of internal parasites and consolidation of the immune system through stimulating the macrophage functioning as a drastic remover of fish external parasite.

**Materials & Methods:** 200 pieces of ornamental golden fish were selected as experimental fish affecting by monogene parasites, lernae and protozoa Trichodina, Ich and chilodonella. These infested fishes were evenly (50 pieces in each aquarium) distributed in the four aquaria (pH and dissolved oxygen level were similar to those of in the outdoor ponds. The aquarium 1 was received 0.25 mg/l Masoten, aquarium 2 received 10 mg/L levasol and aquarium 3 received combination of masoten and Levasol (10 + 0.25).

**Results & Conclusion:** The results showed that each of the individual drug was somehow effective in the control or elimination of the parasites. Nevertheless, the combined application of these two drugs had a far more impact a wiping out the external parasites of both Metazoa and protozoa. Moreover, the combined usage of the drugs had also resulted in better control of secondary infections that caused fin erosion in fish.

**Keywords:** Masoten, Levamisole, fish, parasites.

### Crocins suppresses the expression of iNOS in spinal cords of Experimental Autoimmune Encephalitis mice as a model of Human Multiple sclerosis

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**Objectives:** Experimental autoimmune encephalomyelitis (EAE) is an animal model of human CNS demyelinating disease, multiple sclerosis (MS). This model is combined with inflammatory responses of the innate immune system with concurring free-radicals generation resulting to oxidative stress. Inducible nitric oxide synthase (iNOS) is an enzyme that produces nitric oxide (NO) during the brain inflammatory conditions and is thought to contribute to the pathogenesis of multiple sclerosis. Saffron extract or its active constituent, crocin, have been shown to pose potential therapeutic effects in different models of oxidative stress-induced neurodegenerative disorders.

**Materials & Methods:** Herein, the potential effects of crocin (100mg/kg/day i.p.), as an herbal antioxidant was evaluated on the mRNA expression iNOS using real-time RT-PCR, following the induction of EAE. In this model, animals are introduced to the whole or parts of various proteins of the myelin sheet, which mounts the animal's immune system to attack on its own myelin.

**Results & Conclusion:** Although the expression of iNOS was increased in EAE mice spinal cords, administration of crocin could significantly suppress its expression at day 7 after induction of EAE, resulting in alleviation of overall inflammatory responses. This indicates a potential therapeutic value of crocin in MS patients and defines a new pharmacological tool for reducing the neuroinflammation and oxidative injury occurs in brains and spinal cords of the MS patients.

**Keywords:** Multiple sclerosis, iNOS, crocin (saffron), EAE.



### Effects of oral consumption of elemental selenium particles at nano-size (Nano-Se) in comparison with sodium selenite on hematological profile in sheep

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**Objectives:** Recent studies have shown that elemental selenium particles at nano-size exhibit comparable bioavailability, more efficiency in upregulation selenoenzymes and less toxicity in mice and rats compared with sodium selenite, selenomethionine and methylselenocysteine. The present study was designed to compare the effect of nano-red selenium and sodium selenite on sheep blood panel. Nano-red selenium was synthesized as described previously by Zhang (2004). The obtained Nano-Se was characterized using scanning electron microscopy (SEM) and the sizes of nano-red Se particles were ranged from 80 to 200 nm.

**Materials & Methods:** Fifteen healthy, 5 to 12 months old, Lori-Bakhtiary sheep were selected and randomly assigned to three groups. Sheep were orally given nano-selenium (Group I; 1mg/kg) and sodium selenite (Group II; 1mg/kg) for 10 consecutive days. The control group was given distilled water. Blood samples containing heparins were taken from jugular vein of sheep into acid-washed tubes on the days 0, 10, 20 and 30th. RBC, PCV, Hb, WBC and Differential leukocyte values were measured using routine procedures (Jain 1993). The results were analyzed by Sigmasat program, using one-way ANOVA at the level of  $P < 0.05$ .

**Results & Conclusion:** In PCV and RBC values, no significant difference was found in samples of different days and between different groups. In groups I and II there were significant increase in WBC and neutrophils and significant decrease in lymphocytes on days 10 and 20 in comparison with day 0 and significant increase in neutrophils and significant decrease in lymphocytes on day 20 in comparison with day 10<sup>th</sup> were seen. Also in group I there was significant increase in WBC and neutrophils on the day 30 in comparison with the days 0 and 10. By comparing the means of the three groups it was revealed that there were significant increase in WBC and neutrophils and significant decrease in lymphocytes in-group I on the days 20 and 30 and in group II on day 20 in comparison with the control group. The neutrophils and lymphocytes values in group I showed significant increase and decrease on day 10 in comparison with the groups II and control respectively. Therefore, the nano-Se has better and stronger effects on increasing WBC and neutrophils in sheep than Sodium Selenite. It is recommended to use nano-Se as food supplements in animals' diet instead of other forms of Selenium.

**Keywords:** Nano-Selenium, Sodium Selenite, Hematological Profile, Sheep.

### A PK/PD study after single oral administration of two dose levels of Zolpidem in dogs

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**Objectives:** Zolpidem belongs to Z-drugs, a group of non-benzodiazepine drugs with effects similar to benzodiazepines, used in the treatment of human insomnia. The hypothesis is that zolpidem, could be used in cases of acute-onset and severe phobic states, such as thunderstorm phobia and separation anxiety, where there is the need for safe and rapid reduction in responsiveness to environmental stimuli and initiation of sleep, with relatively short duration of action and rapid recovery. The aim of the present work is to evaluate the PK/PD of zolpidem in dogs after single oral administration at different doses.

**Materials & Methods:** Eight adult dogs of different breeds were orally administered with zolpidem according to a two treatment groups (0.15 and 0.50 mg/kg), using an open, single-dose, two-strength, two-period, cross-over design. Drug plasma concentrations were evaluated by a validated HPLC-FL method, while the pharmacodynamics by sedation scale and the evaluation of basic clinical parameters. Compartmental pharmacokinetic evaluation for each individual animal's time vs. blood concentration profiles for zolpidem was performed by WinNonLin 5.3.0 program.

**Results & Conclusion:** The pharmacokinetics in dogs was dose depended. In this study lower drug plasma concentration were found than in humans administered with the same dose of drug. Zolpidem at 0.15 mg/kg did not produce any clinical of adverse effect, while at 0.5 mg/kg generated a paradoxical CNS stimulation (about 1 h long lasting) in all the subjects. The first sign showed up was vocalization, followed by restlessness, anxiety, euphoria, acute rage reaction, excitement, scialorrea and increased muscle spasticity. These effects were showed up in a variable time (ranging from 15 to 50 min) and lasted for about 1 h. In some subjects, a subsequent short and light phase of sedation was reported. This latter was classified as no clinically relevant. The drug showed clinically ineffective plasma levels up to 30 ng/mL. This level is very close to the calculated minimal plasma concentration producing side effects of 60 ng/mL. In conclusion, zolpidem is a drug not suitable for the hypnosis in canine species.

**Keywords:** zolpidem; Z-drugs; PK-PD; paradoxical reaction; dogs; hypnotic.



### Toxicological pathology of Levamisol in white balb/c mice at Basra city Southern Iraq

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**Objectives:** Levamisol is one of the most widely used Anthelmintic for sheep, Goat and Cattle. However, it has many side effects when used in high and chronic dose.

**Materials & Methods:** The study was done on (8) weeks old mice for ten weeks in three groups as: untreated (control), intermediate dose (0.24 ml/kg. /b. w.) level and high dose ( 0.12 ml/kg./b. w. ) group, treated daily with levamisol ( a drug used for treatment of parasitoses in sheep and goats) as sub chronic toxicity study. The results revealed no change in body weight, significant decrease in hemoglobin and PCV in Levamisol groups, when compared with control. The Levamisol groups showed a significant increase in the levels of liver enzymes (ALT, AST, and ALP) when compared with control group.

**Results & Conclusion:** Some animals died during the experiment, in the beginning of dosing some animals appeared weak with poor condition but later settled down. At the end of the experiment, animals were anesthetized and postmortem examination was done and samples were taken from visceral organs including; liver, kidney, lung, heart, brain, spinal cord, sciatic nerve and testes were fixed in 10% formalin and histopathology was done. Degenerated changes were seen, as follows: diffuse vacillation of hepatocytes associated with periportal fibrosis and barnachymal foci of mononuclear cells. A dilated cortical tubules in kidneys mainly as proximal convoluted tubules associated with aggregates of lymphocytes. In spleen, a per follicular deposits of amyloid in white pulp lymphoid tissue which showed evidence of extramedullary. A per bronchial aggregates of lymphocytes and areas of emphysema shown in lungen, also, areas of bronchial epithelial hyperplasia associated with developing of epithelium and increase mucous secretion, also areas of granulomatous inflammatory reaction. A sciatic nerve showed occasional degenerated vacuolated nerve fibers. Occasional vacuolated myocardial muscles cells were founded in heart. In conclusion the toxicity manifest by hepatic vacillation which could mean hepatotoxicity, also, evidence of renal toxicity as dilated cortical tubules.

**Keywords:** Levamisol, vacillation, liver enzymes, spinal cord, sciatic nerve.

### Therapeutic Effects of Butalex, Diminazen, Imidocarb and Chloroquin against Haemoproteus spp Infection in Pigeons

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**Objectives:** Haemoproteus spp is hemotropic parasites that infect red blood cells (RBCs) of pigeon. Three species of Haemoproteus affect pigeons; *H. columbae*, *H. sacharrovi* and *H. maccallumi*. They are transmitted via blood sucking insects including mosquitoes and hypoboscid fly. Infected pigeons show no signs but, heavy infections can cause restlessness and anemia. There is no cure once the pigeons are infected. The aim of the study was to find an effective drug against Haemoproteus spp infections in pigeons.

**Materials & Methods:** 36 infected pigeons were selected out of domestic pigeons using blood smears examination. Then, the infected pigeons were divided to six groups. The groups 1 to 4 were selected for testing of therapeutic effects of Butalex(anti-Theileria) ,Diminazene aceturate(anti-Babesia) , Imidocarb(anti-Babesia) and Chloroquine (anti-Malaria) and the groups 5 and 6 were considered as control positive and negative groups for prescribed drugs.

**Results & Conclusion:** The results showed that Butalex (Buparvaquone) had the best effect against Haemoproteus spp infection in pigeons in dose of 2.5 mg/Kg. The Imidocarb and Berenil were not effective while the Chloroquine reduced the number of gametocytes circulating in the infected blood. Based on the results it is concluded that Butalex can be used for treatment of Haemoproteus spp infection in pigeons.

**Keywords:** Therapeutic effect, Haemoproteus spp, Pigeon.



### Effects of therapeutic dose of gentamicin on magnesium and parathormone in sheep

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**Objectives:** The aim of this study was to evaluate the effects of gentamicin on blood parathormone and magnesium and urine magnesium under treatment doses and interval usage in the sheep.

**Materials & Methods:** Five clinically healthy female one year old sheep, with average weight of  $39 \pm 3$  kg were recruited for this study. The animals were dewormed by albendazole 15 mg kg<sup>-1</sup> orally and ivermectin 0.2 mg kg<sup>-1</sup> subcutaneously. Prior to induction of the disease (0h), blood samples via jugular vein and urine samples with urinary catheterization were taken to determine base line of blood parathormone and magnesium and urine magnesium. Gentamicin was administrated to jugular vein at a dose rate of 2.2 mg kg<sup>-1</sup> body weigh with normal saline solution every 12 hours up to five days.

**Results & Conclusion:** Blood parathormone level increased partially but significant increase ( $P < 0.05$ ) occurred at 108 hour after administration of gentamicin. Blood magnesium increased significantly at 36, 48, 60, 72, 84, 96, 108, 120, 168, 216 and 264 h and urine magnesium increased significantly at 72, 84, 96, 108, 120, 168, 216 and 264 h after injection of gentamicin. In conclusion, the usage of gentamicin in animals that has been in risk of hypomagnesaemia is contraindicated. During gentamicin therapy parental magnesium solutions must be used to inhibit hypomagnesaemia and nephrotoxicity.

**Keywords:** Gentamicin, Magnesium, parathormone, sheep.

### Evaluation of oxidative changes in erythrocyte membranes of sheep experimentally exposed to paraquat

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**Objectives:** Owing to red blood cell (RBC) and its membrane importance and the direct exposure to drugs and substances entered in to the bloodstream, this study was designed to assay the oxidative stress impacts on these blood components.

**Materials & Methods:** The sheep RBCs membrane were selected in isolated form to investigate the direct effects of oxidant agents on RBC membrane and the effects of pesticide, paraquat and hydrogen peroxide, in three different concentrations were evaluated on sheep RBCs. The normal saline was used as negative control.

**Results & Conclusion:** In the membrane fragility test, hydrogen peroxide and paraquat caused significant increase in membrane fragility in all the different dilutions. The lipid per oxidation and carbonyl protein tests, demonstrated meaningless increase for values in treatment groups compared with insignificant decrease in thiol group test. According to the results of this assay, not only the negative impacts of oxidant factors (hydrogen peroxide and paraquat in this study) on RBC membrane are definite but also these effects are dose dependent. Therefore paying attention to this issue seems necessary specifically in researches which are carried out for finding the toxicity mechanisms, treatment and prevention.

**Keywords:** RBC, oxidative stress, paraquat, hydrogen peroxide.





### Antagonistic effect of suramin and vitamin K3 combination against the venom of the Iranian snake *Echis carinatus* in mice

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**Objectives:** Snake bites can be fatal if not treated quickly. *Echis carinatus* (Saw-scale viper) is one of the most venomous snakes in Asia and some parts of the Africa with deadly hem toxic venom. Since it has been reported that sprain, an anti-trypanosomiasis drug, can inhibits the toxic effects of some snake venoms, and Vitamin K can affect the blood coagulation, this study was conducted to evaluate the effects of suramin and Vitamin K on envenoming by the Iranian snake *Echis carinatus*.

**Materials & Methods:** Twenty eight albino mice weighing  $35 \pm 5$ g were divided into four groups (A, B, C, and D) of seven mice. Group A, as a control received the venom at 10 mg/kg, group B was treated with 10 mg/kg of suramin 15 min after injection of venom, group C was treated with 5 mg/kg of Vitamin K3 15 min after injection of venom and finally group D was treated with a combination of suramin and vitamin K3 with mentioned doses. Venom and suramin have been administrated by Intraperitoneal (IP) injection and vitamin K3 by Subcutaneous (SC) injection.

**Results & Conclusion:** The results showed that all mice in group A succumbed after  $40 \pm 4$  min while time to death in group B ( $P < 0.05$ ) that was treated with 10 mg/kg of suramin increased to  $61 \pm 6$  min. In contrast, time of death decreased to  $32 \pm 4$  min in group C that was treated with 5 mg/kg of Vitamin K3. In the final experiment suramin at 10 mg/kg is simultaneously injected with vitamin K3, after injection of venom into animals. In the final experiment, with group D, the survival time of this group were significantly increased to  $80 \pm 8$  min when compared to control group. The results of this study showed that combination of suramin and vitamin K3 has more antagonistic effect on venom than a single dose of suramin or vitamin K3 and has a protective role against *Echis carinatus* venom at least in delaying time of death in envenomed animals. The experiments still continue.

**Keywords:** Suramin, *Echis Carinatus*, Venom, Vitamin K3, Antagonist.

### Cyclin D1 mRNA Level is Downregulated in Murine Model of Alzheimer's disease

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**Objectives:** Alzheimer's disease (AD) is a progressive neurodegenerative disorder involving misfolding and aggregation of a fibrillar 42-aa form of  $\beta$ -amyloid ( $A\beta$  1-42) peptide, which triggers a cellular stress response called the unfolded protein response (UPR). UPR accompanies the activation of protective cascades such as PERK pathway. Recent studies have demonstrated that PERK pathway transmits a stress signal that arrests the cell cycle in G1. Cyclin D1 is a regulator of G1 to S phase transition of cell cycle. This study was conducted to evaluate the expression of cyclin D1 mRNA in mice after induction of Alzheimer's disease.

**Materials & Methods:** Bilateral infusions of 1mM fibrillar  $A\beta$  1-42 ( $n=14$ ) or PBS (for control littermates,  $n=12$ ) were made stereotactically into the dorsal hippocampus, using 31-gauge cannulae connected by PE tubing to 5- $\mu$ l Hamilton syringes mounted on a Hamilton syringe drive. Two weeks later, total RNA from mouse brain tissues were prepared using Trizol according to the manufacturer's guidelines, from which one microgram was used for cDNA synthesis and PCR. Semiquantitative analysis using the cyclin D1 primers was performed by monitoring in real time the increase in fluorescence of SYBR Green dye and normalized against the GAPDH expression levels.

**Results & Conclusion:** The real-time RT-PCR analysis revealed a significant decrease in cyclin D1 mRNA levels in  $A\beta$  1-42 implanted mouse brain compared with control littermates. This might have an impact on neuronal death and other pathological aspects of AD. Glycogen synthase kinase-3 $\beta$  (GSK-3 $\beta$ ) is a cytoplasmic protein kinase that is activated by PERK pathway and is capable of regulating cyclin D1 expression. Therefore pharmacological inhibitors of GSK-3 $\beta$  such as thiadiazolidinone compound might be of beneficial to increase the expression of cyclin D1 and be a good strategy for the treatment of AD.

**Keywords:** Cyclin D1, Alzheimer's disease, Real time RT-PCR



**Antiviral and Cytotoxic properties of *Silybum marianum*, *Chenopodium album* and *Nigella sativa* against Peste des petitis ruminants and Foot and Mouth Disease viruses in-Vitro**

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**Objectives:** To determine the antiviral and cytotoxic properties of the three medicinal herbs *Chenopodium album*, *Nigella sativa* and *Silubum marianum* against Peste des petites ruminants virus and Foot and Mouth Disease virus In vitro.

**Materials & Methods:** In the present study, three medicinal herbs *Chenopodium album*, *Nigella sativa* and *Silubum marianum* were extracted by methanolic solvents and each extract 100 µg /ml, 50 µg /ml, 25 µg /ml, 12.5 µg /ml, 6.25 µg /ml and 3.125µg /ml was tested for its antiviral and cytotoxic property against Peste des petites ruminants virus and Foot and Mouth Disease virus In vitro cell culture using MTT assay.

**Results & Conclusion:** *Chenopodium album* has antiviral activity and does not showed cytotoxicity at 100µg /ml against Peste des petitis ruminants and Foot and Mouth Disease. *Silybum marianum* showed cytotoxicity at 100µg /ml against Peste des petitis ruminants and Foot and Mouth Disease and has antiviral activity at 50, 25, 6.25µg /ml. *Nigella sativa* also showed cytotoxicity at 100µg /ml against Peste des petitis ruminants and Foot and Mouth Disease and has antiviral activity.

**Keywords:** *Silybum marianum*, *Chenopodium album*, *Nigella sativa*.

**Effect of Incessant Administration of Polysorbate 80 to Chicken (*Gallus gallus*) Through Drinking Water on Liver and Kidney Functions**

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**Objectives:** Emerging use of poorly soluble or permeable compounds such as vaccines, herbal extracts and essential oils in poultry production, represents a reason to introduce inexpensive and non toxic vehicle formulations and emulsifiers. Polysorbate 80 (PS-80), also known as Tween 80, is a commercially available nonionic surfactant. Experimental results on effects of PS-80 on chicken as well as other avian species are scarce. This study was undertaken to study the response of juvenile broiler chicks to intake of PS-80 through drinking water with respect to indicators of liver and kidney.

**Materials & Methods:** An experimental flock consisting of 120 one-day old Cobb 500 broiler chicks were randomly divided in 6 groups 20 each and then randomly allocated into 1 of the 6 floor pens. The birds in each replicate received drinking water supplemented with either 0 (control) or 3500 ppm Polysorbate 80 (PS-80). Productive performance data recorded weekly. At 28 days of age, two male and two female chicks per pen were killed and their blood samples were analyzed for determination of the serum enzymes including serum SGPT, SGOT, SALP and biochemical parameters relevant to kidney function.

**Results & Conclusion:** Live weight gain and feed conversion ratio were significantly suppressed in response to supplementation of drinking water with 3500 ppm PS-80 ( $P < 0.05$ ). Supplementation of drinking water with 3500 ppm PS-80 showed no significant effect on liver weight and liver pH of the chicks at 28 days of age ( $P > 0.05$ ). No significant differences were pointed out in SGPT and SGOT enzymes between the birds received either normal or treated water ( $P > 0.05$ ). However, PS-80 caused a considerable increase in ALP enzyme compared to the normal chicks (62 vs. 45 IU/l;  $P = 0.0984$ ). Such an increased ALP is interesting, but may be misleading, since it was minimal and not associated with an increase in other liver-specific enzymes. The PS-80 supplemented water resulted in no change in serum urea and keratinine but lowered serum uric acid in males and females by 0.74 and 0.71 mg/dl, respectively. Based on the findings, persistent exposure of broiler chicks to 3500 ppm PS-80 through drinking water has a negative impact on juvenile growth performance in chicks. No indication was found that such discouraging impact is caused by liver or kidney dysfunction.

**Keywords:** Polysorbate 80, *Gallus gallus*, liver, kidney.



### Effect of single and repeated doses of Enrofloxacin upon biochemical markers in female Rabbit

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**Objectives:** Enrofloxacin is a broad-spectrum bactericidal antibiotic and is effective against a broad spectrum of gram-positive and gram-negative bacteria. This study was focused on the administration of single and repeated dose of enrofloxacin to monitor their effect on health status of rabbit.

**Materials & Methods:** Fifteen healthy rabbits were kept in the animal house and provided with standard environment, healthy feed and fresh water on daily basis. Body weight was measured at the start and at the end of trial period of seven days. Therapeutic dose (5mg/Kg b/w) of enrofloxacin was administered orally through tubing procedure once in a day on 24 hour intervals as single dose and then continued for a week. Blood samples were collected after 24 hours of single dose administration and at the end of experimental period for biochemical analysis. Following biochemical parameters were studied: Triglycerides and total cholesterol.

**Results & Conclusion:** The results showed that enrofloxacin is highly effective even at single dose administration for all the biochemical parameters observed in this study. But repeated dose treatment showed that enrofloxacin has significant effects on lipid profile by increasing the concentration of cholesterol, triglycerides and by decreasing LDL-cholesterol. However it decreased ( $p<0.05$ ) the HDL- cholesterol concentrations in all treated rabbits. There was no significant effect of enrofloxacin repeated dose in arylesterase and ceruloplasmin concentration Paraoxonase did increase after enrofloxacin repeated dose administration. There was a decrease ( $p<0.05$ ) in concentration of TAS while concentration of TOS did increase ( $p<0.05$ ) after repeated dose. There was no significant effect of enrofloxacin repeated dose on ALT and AST serum concentration.

**Keywords:** Enrofloxacin, Rabbits, Serum Biochemicals, Health Biomarkers.

### Effectiveness of Hydrogen Peroxide, Nanosilver, Chloramine-T for Treating Fungal Infection of *Acipenser persicus* Larvae

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**Objectives:** Fungal and parasitic infections of fish can significantly affect the survival of cultured fish. Fungal species have historically caused major problems in aquaculture (Alderman and Polglase, 1984). Each sort of stress such as overcrowding, injury, poor water temperatures, altering, deadly chemicals that exist in fish farm continuously would increase potential fungal contamination of eggs and fishes. Formalin is currently used to control such infections; however, concern has arisen over its safety for users and the environment. In this study the efficacy of three common disinfectants of Hydrogen peroxide, Chloramine-T, Nanosilver (Nanocid) was determined in different treatments.

**Materials & Methods:** In this study, 2600 *Persicus sturgeon* larvae (30-40 mg) kept in 18 aquaria (20 liter, 140 larvae each was recruited. There were five treatments and one control with three replications. Disinfection treatments included ChloramineT (15, 20), Nanosil (40, 80), and Hydrogen peroxide (40) mg/l via bath method for 15min every other day. One g sample of larvae was taken and prepared as suspension and 0.1 and 0.5 mL of dilutions added to the SDA and CMA media. Plates were incubated in 25°C for 48-72h at incubator. After fungal growth colonies were counted based on CFU.

**Results & Conclusion:** According the one way anova analysis there was significant difference between different treatments and control after using disinfectant drugs in 3 weeks ( $P<0.05$ ). Also, Dankan test indicated that there was meaningful difference between these groups: (control treatment, hydrogen peroxide40 treatment) and (control treatment, nanosilver80 treatment) and (nanosilver40 treatment, nanosilver80 treatment). Result showed Nanosilver 80 mg/L treatment had the minimum ( $3/55\pm0/44$ ) and control treatment had the maximum ( $8/66\pm0/81$ ) total fungal counts between other disinfection treatments. Therefore, this study showed Nanosilver 80 mg/l treatment was the most effective methods compare with other disinfection treatments .So, it is suggested that to employ nanosilver for all kind of fungal diseases of aquatics eggs, larvae, fingerlings.

**Keywords:** *Acipenser persicus* Larvae, Fungal infection, Nanosilver (Nanocid), Hydrogen peroxide, chloramine-T.



### Therapeutic Management of Otitis Externa Induced by *Malessezia pachydermatis* in 76 Dogs

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**Objectives:** *Malessezia* yeasts are fungi that may colonize in superficial layers of epidermis especially in stratum corneum. They exhibit symbiotic relationship with cutaneous staphylococci and may induced pyoderma and even hypersensitivity. Some breeds are more susceptible to disease.

**Materials & Methods:** A clinical survey was performed in 76 dogs with otitis externa that *M. pachydermatis* was seen or isolated from their ear discharges. Dogs were 3- 12 years old and most of them Terrier or Pekinese. They showed clinical signs include emanating unpleasant odor especially around heads and ear canals, pruritus, excoriation, redness and alopecia in ear canals. Sampling was performed using sterilized cotton swabs and studied in mycology laboratory of small animal polyclinic associate to Islamic Azad University, Science and Research branch. They cultured if necessary in suboro dextrose agar with olive oil and chloramphenicol.

**Results & Conclusion:** 63 dogs (82.89%) showed a good response after 7 days. They became better after 21 days and the medication was cut in day 40. The ear canals of 8 dogs (10.5%) were washed on day 7 and medication was continued until complete recovery. Five dogs were not treated. Accurate examinations revealed a foreign body in one case and probability of hypothyroidism in the others. After removing of foreign body or administration of Levothyroxine, all dogs were treated successfully. *M. pachydermatis* is opportunist yeast. Poor ventilation and drainage, over-treatment, ear shape, foreign bodies, humidity and exudation may increase overgrowth.

**Keywords:** Otitis Externa, *Malessezia pachydermatis*, Dog, Iran.

### Evaluation of antioxidant effects of omeprazol on the cysteamine-induced duodenal ulcer in rat

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**Objectives:** Oxidative stress is important factor underlying in a variety of diseases. Cysteamine is a cytotoxic agent, acting through generation of reactive oxygen species (ROS) and may decrease defense activity of antioxidative enzymes against ROS and induce duodenal ulcer. Omeprazol, is a proton pump inhibitor, acts as free radical scavengers. The aim of this study was the evaluation of the effect of omeprazol against cysteamine-induced duodenal ulcer by determining duodenal damage, duodenal tissue SOD and GSH-PX activities and plasma MDA level.

**Materials & Methods:** This study was performed on 3 groups of 7 rats each: saline, cysteamine and cysteamine plus omeprazol treated groups. The effect of omeprazol against cysteamine- induced duodenal ulcer was determined by evaluating the duodenal damage, duodenal tissue SOD and GSH- PX activities and plasma MDA level. All animals were euthanized 24 h after the last treatment and 2ml blood and duodena samples were collected for calculation of ulcer index, histopathological assessment and measurement of tissue SOD, GSH-PX activities and plasma MDA level.

**Results & Conclusion:** Cysteamine produced severe duodenal damage and decreased the activity of duodenal tissue SOD from  $4.801 \pm 0.36$  (for saline) to  $0.796 \pm 0.36$  and activity of duodenal tissue GSH- PX from  $7.507 \pm 0.36$  (for saline) to  $4.985 \pm 0.36$ . Cysteamine increased the plasma MDA level to  $3.062 \pm 0.039$  compared with saline pretreated rats ( $1.365 \pm 0.039$ ). Pretreatment with omeprazol decreased the cysteamine-induced duodenal damage and plasma level of MDA ( $2.374 \pm 0.039$ ) and increased the activities of SOD ( $4.735 \pm 0.36$ ) and GSH-PX ( $10.042 \pm 0.36$ ) in duodenal tissue compared with cysteamine pretreated animal. The results suggested that omeprazol protects against cysteamine-induced duodenal ulcer and inhibits the decrease in SOD and GSH-PX activities and lipid peroxidation by increasing antioxidant defenses.

**Keywords:** Cysteamine-induced duodenal ulcer; Omeprazol; Oxidative stress; SOD, GSH-PX, MDA, rat.



### Comparative survey of effectiveness of Emisol (Erfan daroo) and Trypan (diminazen.diaceturate + procaine Hcl + antiprine (phenazone) ) on cattle and sheep infected by babesiosis in Mazandaran and their effects on immune system and liver enzymes

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**Objectives:** Babesiosis is one of the protozoan diseases and the most common *Babesia* species in cattle are *Babesia bovis* and *B.bigemina* and in sheep is *B.ovis*. This parasite results in intravascular haemolysis and haemolytic anemia. Due to liver involvement the liver enzymes increase because of extensive haemolysis. This study has been carried out to survey the effect of Emisol and Trypan on liver enzymes and immune system of infested animals in 2 farms with 150 cattle in Mazandaran province.

**Materials & Methods:** Upon diagnosis of disease, animal grouping and data collection, thin smears from ear peripheral blood and 2 blood samples from jugular vein with and without anticoagulant agent were prepared. Then antibabesiosis drugs were administered and sampling was repeated in days 0,7,14 after administration. Blood smears prepared from ear were stained with Giemsa and examined by electron microscope for presence of parasite. Serums were prepared from blood samples which were without anticoagulant agent and stored in -20°C for clinical pathologic examinations.

**Results & Conclusion:** Presence of *Babesia bovis* in cattle and *B.ovis* in sheep was confirmed by microscopic examination. All animals which were treated by these two drugs were improved but recovery signs such as returning appetite, removing of clinical signs and absence of parasite in blood smear were more sensible in animals treated by Trypan. Trypan reduced ALT, AST and ALP liver enzymes better than Emisol and was more effective than Emisol in sheep and cattle babesiosis treatment.

**Keywords:** Babesia, Cow, Trypan, Diminazon, Sheep, Emisol, Mazandaran.

### Histopathologic and morphometric evaluation of Garlic Extract impact on wound healing process in silver carp (*Hypophthalmichthys molitrix*)

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**Objectives:** Wound healing is a valuable biologic process that restores tissue integrity after injury. Many natural substances were used to this end from which garlic has a traditional usage in diseases and wounds management.

**Materials & Methods:** In this study, 20 fishes with similar age and weight were selected, and after inducing anesthesia and surgical preparation, a 3-4cm incision was made in the left side of each fish with surgical punch biopsy. Garlic extract in four concentrations of 100%, 50%, 1%, was used as a daily topical application on skin wounds compared with the control group. In the control group, skin wounds were treated daily using cold cream until complete repair. Daily measurement of wound diameter and histopathologic evaluation in 3, 8 and 13 days after surgery were performed.

**Results & Conclusion:** The results showed that :1)50% concentration garlic extract improved healing process faster than pure garlic extract due to less inflammatory reaction in 50% concentration garlic.2)1% concentration garlic extract had no significant effect on promoting wound repair compared with cold cream. 3)Garlic extract had lesser adverse effects and less compatibility with lived tissue and environment and more economic compared with chemical agents.4)Statistical tests showed that on day 3 ,8,13 there was a significant difference between 50% concentrated garlic extract and other concentrations in respect to fibroblast, collagen and angiogenesis formation.

**Keywords:** Garlic extract, histopathologic ,morphometric, wound healing, silver carp.



### Effect of Mexiletine on Feline hepatic enzymes

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**Objectives:** Most arrhythmias in cats are associated with primary or secondary cardiomyopathy. Many of the common antiarrhythmics, particularly the class I agents produce toxic side-effects in cats, and must be used very cautiously. Mexiletine is considered as a class IB antiarrhythmic agent which may be useful to treat some ventricular arrhythmias, including PVCs and ventricular tachycardia in small animals. It is metabolized in the liver to inactive metabolites after administration. Therefore it should be used with extreme caution especially in cats with cardiac disease. Toxicity associated with over dosage of Mexiletine may also be significant.

**Materials & Methods:** Therapeutic doses for dog usually prescribe in cat as well. To evaluate the effect of Mexiletine on four main hepatic enzymes (LDH, CPK, SGOT and SGPT) at normal therapeutic doses in dog (4 and 10mg/kg) and higher doses (15, 20 and 40mg/kg) was the study goal. These doses were administered orally and after 2-3 hours, blood samples were taken from jugular vein. Supernatant of each sample was separated using centrifuge and the contained hepatic enzymes were measured and results were analyzed and compared with control group.

**Results & Conclusion:** There was a significant difference between hepatic enzymes (LDH, CPK, SGOT and SGPT) in all treatment and control groups. The levels of hepatic enzymes had been increased significantly at all doses in comparison with control group. In conclusion, this study indicates that it seems that Mexiletine administered at therapeutic doses of dogs and higher doses can change the liver function by increasing the main hepatic enzymes. Dose determination of Mexiletine for cat should be done separately.

**Keywords:** Mexiletine, hepatic enzymes, cat.

### Histopathological survey on Salinomycin toxicity in broiler chickens infected by coccidiosis

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**Objectives:** Coccidiosis is a significant problem in the compact poultry raising systems and several drugs are using in order to prevent and treat the disease. Ionophores are the most common anticoccidial drugs. Salinomycin is extremely employed in Iran poultry industry as a coccidiostat. This study was performed to evaluate toxicity effects of its overdoses in broiler chickens infected experimentally by coccidiosis on the basis of histopathological findings.

**Materials & Methods:** 50 female Cobb-500 day-old chicks were randomly divided in 5 groups (control positive, control negative and treatment 1, 2 & 3). All chickens infected by Eimeria strains including 25% *E.tenella*, 40% *E.maxima*, 20% *E.acervulina* and 15% *E.necatrix* via oral administration of 100 (equal to 10000 Oocysts). Control positive group was received preventing dose of salinomycin (75 ppm). Chickens in treatment groups 1, 2 and 3 were received 150, 300 and 600 ppm of drug respectively and in negative control group no drug was added after infecting. The external symptoms and necropsy findings were exactly evaluated.

**Results & Conclusion:** Results indicated that higher doses (up to 75 ppm) of Salinomycin increased depression and paralysis. Intoxicated chickens were found depressed with muscle atrophy, falling down of wings and neck and also green diarrhea was observed obviously. According to the results, utilization of Salinomycin even for control and prevention (75 ppm) doses led to decrease in weight gain and increase of FCR. Macroscopic examination confirmed that increasing the dose of Salinomycin can significantly prevent intestinal villi and mucous destruction due to Eimeria invasion but influencing growth performance considerably. Acute Cell Swelling (ACS) in proximal tubules and Acute Tubular Necrosis (ATN) were obvious pathologic findings in kidneys. Microscopic findings indicated congestion and hemorrhage in the majority of tissues with necrosis and accumulation of inflammatory cells.

**Keywords:** Coccidiosis, Salinomycin, Toxicity, Histopathological findings.



**Evaluation of acute and subacute toxicity of a new clofibrate analogue (silafibrate) in laboratory animals.**

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**Objectives:** Fibrates, peroxisome proliferator-activated receptor- $\alpha$  agonists are hypolipidemic drugs used to lowering blood lipid profile. A siliconized analog of clofibrate, ethyl-2-methyl-2-(4-(trimethylsilyl) phenoxy) propionate has been already synthesized. The present study was carried out to evaluate the acute and subacute toxicity of a new clofibrate analogue (silafibrate) in mice and rats.

**Materials & Methods:** Acute toxicity of silafibrate was evaluated in mice after oral administration during one day and animals monitored for any toxicological symptoms for 14 days. Thirty-day subacute toxicity was conducted using oral daily dose at 0, 25, 50 and 100 mg/kg body weight in rats.

**Results & Conclusion:** LD50 of Silafibrate by oral treatment was greater than 2000 mg/kg body weight in both female and male mice while LD50 for clofibrate calculated 1250 mg/kg in mice. Subacute treatment did not show any change in corporal weight and hematological parameters. However, a change in blood lipids profile was observed. No significant changes in food intake, behavior, mortality, hematology, blood biochemistry and vital organ weight were observed and no clinical signs or adverse effects detected by administration of Silafibrate. These results support the safety and efficacy of silafibrate for oral consumption.

**Keywords:** Clofibrate, Siliconized analog, Silafibrate, Toxicity, Acute, Subacute.

**Comparative Study on effect of two Antibiotics (Pantrisol & Oxytetracycline 20%) in treatment of lamb affected by chronic Pneumonia**

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**Objectives:** Chronic Pneumonia is one of the common diseases in lambs. In this research two most common antibiotics for this disease were compared in terms of the efficacy and side effects. Two groups of lamb affected with chronic pneumonia were treated with Pantrisol & Oxytetracycline 20% and the impacts were studied.

**Materials & Methods:** 150 lambs afflicted by chronic pneumonia were recruited divided into 3 groups (A, B& C). The feeding program and husbandry conditions are the same for all groups. Groups A, B and C were received Pantrisol, Oxytetracyclin 20% and no treatment respectively. The duration of treatment, side effects on lambs and mortality rate were examined. Antibiotic impacts on meat and other lambs' production quality were studied too.

**Results & Conclusion:** Depending on the region and type of causative agent of chronic pneumonia the results were found different but Pantrisol was found as the better choice with shorter period of treatment and stronger effect causing less side effects. Also mortality rate in group A that cure with Pantrisol was very low although mortality in chronic pneumonia cases are unavoidable.

**Keywords:** Comparative, Effect, Antibiotic, Pantrisol, Oxytetracycline 20%, Lamb, Chronic Pneumonia



## Effects of Dietary Organic Acids and Essential Oils on Growth Performance and Carcass Characteristics of Broiler

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**Objectives:** A study was conducted to investigate the effects of organic acid salts (calcium propionate and calcium formate) and plant extracts (a blend of clove and cinnamon essential oils) on growth performance and carcass quality characteristics in broilers.

**Materials & Methods:** Four experimental diets were fed from 1 to 46 d of age: diet C (control) without any added compounds, diet A with organic acid salts (5,120 ppm of formic acid and 2,080 ppm of propionic acid), diet O with essential oils in the amount of 100 ppm, and diet AO with a blend of organic acid salts and plant extracts. A total of 1320 Ross chicks were distributed into 24 groups 55 broilers each, giving 6 replicates per treatment. Growth performance parameters (BW, ADG, and FCR) were evaluated at 15, 21, and 46 d.

**Results & Conclusion:** The test supplements had no influence on BW or ADG, but the FCR were significantly worsen for birds receiving diets A or AO for the whole experimental period compared with those given diets C or O. Carcass weight was not influenced by the supplements. However, breast weight (% of carcass) was higher in diet O than diets C, A, or AO. It was concluded from this experiment that clove and cinnamon essential oils showed a potential advantage over calcium propionate and calcium formate for improving FCR and percentage of breast weight.

**Keywords:** Broiler, Essential oil, Organic acid.

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## Evaluation of Formaldehyde Disinfection

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**Objectives:** In this study the disinfection effect of formaldehyde 2 % under temperature of 70 ° C was evaluated in a cattle farm.

**Materials & Methods:** After mechanical cleaning, the disinfectant solution was applied by a mobile unit and after three hours of exposition, the sampling from floors, walls, troughs and drinking troughs was performed followed by inoculation in three of culture medias: Modified Heifetz (MH), modified Heifetz with histidine 0.1% (MHH) and at Lactose Bromothymol Blue Broth (LBBB) for coli forms.

**Results & Conclusion:** The results were evaluated statistically using comparison of proportions test. The highest efficacy was verified in terms of detectability for LBBB, with statistically significant difference ( $p < 0.05$ ) for MH (41.0 vs. 17.9%). No significant differences were found among the LBBB vs. MHH (41.0 vs. 30.8%) and MH vs. MHH (17.9 vs. 30.8%).

**Keywords:** : Lactose bromothymol blue broth ; Modified Heifetz ; Modified Heifetz with histidine ; Formaldehyde ; Bacteriological control ; Disinfection.





### Effectiveness of Phosphoric Calcareous on Eggs Quality

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**Objectives:** This work was done at the layer farm (White Leghorn) in Masjed Soleyman city; to evaluate the homeopathic remedy "Calcareous Phosphoric" in hydro alcoholic solution d at a dose of 5 drops or 0.25 ml in drinking water per animal.

**Materials & Methods:** 50 cages of laying hens, 4 per cage each, were randomly selected, 25 control and 25 treatment cages. The following indicators were observed and monitored: egg shell thickness, cracked egg shell percentage, broken egg shell percentage, the final egg production and broken eggs. Statistic package version 6.0 was used for statistical processing purpose.

**Results & Conclusion:** Better results were found in the experimental group in relation to egg shell thickness, cracked egg shell percentage, broken egg shell percentage and the final egg production. It was concluded that the application of the Calcareous Phosphoric can exert a positive influence over the said indicators.

**Keywords:** Calcareous, Eggs Laying Hen, Production, Phosphoric.

### Effects of probiotics on performance and serum biochemical parameters in rabbit model

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**Objectives:** Probiotics are live microorganisms thought to be healthy for the host organism. According to the currently adopted definition by FAO/WHO, probiotics are: "Live microorganisms which when administered in adequate amounts confer a health benefit on the host". Because of limitations in usage of antibiotics and other growth promoters, there is increased interest in alternative approaches which include using biotherapeutic agents such as probiotics to improve both growth rate and resistance to diseases in human and animals. The aim of the present study was to evaluate the effects of probiotics on performance and selected blood parameters in rabbit.

**Materials & Methods:** Fifteen Male rabbits with 1 to 1.5 kg weight were randomly divided into three groups with five rabbits in each. The used probiotic was a mixture of *Saccharomyces cerevisiae* and *Bacillus subtilis*. Groups include A: control (probiotic free diet), B: 0.5% and C: 1% probiotics/kg diet. The rabbits were weighend weekly. Serum total protein (TSP), Glucose, cholesterol, phospholipids, AST, ALT, LDH, ALP, Sodium and Potassium in plasma were determined at days 0, 7, 14, 28 and 48 using standard procedures.

**Results & Conclusion:** Probiotic supplemented groups (B, C) had significantly higher ( $P<0.05$ ) weight gain than the control. The present results showed that B and C groups had significantly higher ( $P<0.05$ ) TSP values compared with the control. Glucose level was observed highest in the B and C groups. The total serum cholesterol level was reduced significantly ( $P<0.05$ ) in treatment groups suggesting that these feed supplements may reduce the cholesterol level and may be helpful in preventing atherosclerosis or other cardiac diseases. The highest level of lipid in blood of rabbit was observed in C group. The AST, ALT and ALP in serum of the rabbits did not differ indicating that these feed supplements had no adverse effect on liver, kidney, heart or other vital organs. A reduction in the cholesterol level despite increase in total lipid suggested that their effect on lipid metabolism might be leading to lower the blood level of unwanted saturated fatty acid while increasing the level of unsaturated essential fatty acids which can be concluded as most important positive effect of these feed supplements. At an appropriate level of inclusion, the used probiotics had a beneficial effect on growth and health status of rabbit.

**Keywords:** probiotic, *Saccharomyces cerevisiae*, *Bacillus subtilis*, performance, serum biochemical parameters.



### Chemical and Bio-Equivalence studies of various veterinary brands of Amoxicillin.

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**Objectives:** To develop a sensitive and rapid HPLC method for the measurement of amoxicillin from commercial preparations and from biological fluids.

**Materials & Methods:** To evaluate the chemical and bioequivalence of various veterinary brands of amoxicillin, analysis was performed on HPLC by using Mobile phase, phosphate buffer & Acetonitrile (95:5) in C18 column at the wavelength of 230nm. For chemical equivalence of Farmox L.A, Almox L.A, Amoxivet L.A, concentration of active drug in various dilutions (10µg, 25µg & 50µg) were measured. Bio-equivalence of two long acting (Farmox L.A & Clamoxyl L.A) and two short acting (Farmox & Amoxi vet) preparations were carried out in sixteen buffalo calves by using cross over design.

**Results & Conclusion:** When the drugs were evaluated for chemical equivalence it was found that Farmox L.A has the same concentration as manufacturer claimed while Almox L.A and Amoxvet L.A have low concentrations as the manufacturer claimed. While studying the bioequivalence of various brands of amoxicillin using buffalo calves, it was found that both the long acting and short acting preparations are bio-equivalent with each other in their rate and extent of drug absorption and these can be used as an alternate.

**Keywords:** Amoxicillin, Buffalo Calves, Bio equivalence, HPLC, Chemical equivalence.

### Effect of Garlic (*Allium Sativum*) on Growth Performance and Immune Status of Broiler Chicks

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**Objectives:** This work was conducted to assess the immuno-modulatory effect of different concentrations of Garlic and Zinc Bacitracin on the antibody titers against Newcastle Disease (ND) in NDV (Newcastle Disease Virus Vaccine) vaccinated in broiler chicks.

**Materials & Methods:** 150 day, old broiler chicks were divided into 5 groups i.e. A (vaccinated, non medicated control), B (administered with ND vaccine & Zinc Bacitracin), C (administered with ND vaccine "Lasota" & 1 g/kg Garlic), D (administered with ND vaccine "Lasota" and Garlic 5 g/kg), E (administered with ND vaccine "Lasota" and Garlic (10 g/kg). Each group comprised of 30 chicks. Group E was fed on a ration containing Garlic at the dose rate 10 g/kg of feed and given throughout the study period i.e. up to 42 days of age. Antibody titers were measured.

**Results & Conclusion:** The birds that were, NDV vaccinated and Garlic 1 g/kg medicated had the highest body weight and showed best FCR. The birds NDV vaccinated & Garlic 5 g/kg medicated secured second position regarding weight gain & FCR among the three groups (A, B and C). The birds from group B (Zinc Bacitracin and NDV) had higher body weight than group (A and C). Feed conversion ratio of group B was also found to be better than group A (NDV vaccinated, unmedicated) and group C (NDV vaccinated & Garlic 1 g/kg medicated). None of three treatments (Garlic, Zinc Bacitracin and control) had any adverse effects on weight size, and texture of lymphoid organs (bursa of Fabricius, spleen, thymus and liver). The birds belonging to group E (NDV ND vaccine vaccinated, Garlic 10 g/kg medicated) had shown highest antibody titers on day 42. While the birds of group A (NDV vaccinated, unmedicated control) had the lowest antibody titers. Among three experimental groups (B, C and D), the birds from group D had higher antibody titers as compared to other treatment groups. Whereas the group B had the higher antibody titers than the group C.

**Keywords:** Broiler, *Allium Sativum*, Garlic, Immune Status, Zinc Bacitracin, Newcastle Disease vaccine.



### Occurrence of Lincomycin toxicity in two dairy cows

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**Objectives:** Lincomycin is a lincosamide antibiotic used as additive for growth promotion in poultry and pig, as spray or foot bath in dairy cattle and parenteral form solely or in combination with spectinomycin in small animal and safely in respiratory treatment in cattle, acute and chronic foot rot treatment in sheep. Lincomycin has a few toxic effect in dog and cat but in herbivores such as ruminants and horses exposed to lincomycin-supplemented feed cause serious and fetal diarrhea. In this report intoxication occurred when the trough water erroneously contaminated with lincomycin solution prepared for foot spray.

**Materials & Methods:** Two hybrid cows in a traditional farm were treated for necrotic dermatitis suddenly became anorexic in whom the milk yield suddenly decreased and severe diarrhea developed in 6 hours. After clinical examination and taking history and primary diagnosis, fecal, blood and rumen sample were submitted for analysis. With regard to dehydration status, the animals were promptly treated without laboratory reply. Treatment include vigorous electrolyte therapy with hypertonic saline 7.2% IV and oral electrolyte therapy via stomach tube using activated charcoal, ruminotonic and appetite powder.

**Results & Conclusion:** In human the most serious adverse effect from lincomycin reported is pseudomembranous colitis. This is a serious disease in people caused by an overgrowth and production of toxin from *Clostridium difficile*. In animals with fermenting GI tracts (horses, ruminants, rabbits, hamsters, chinchillas and guinea pigs) there is a high risk of GI bacterial overgrowth with *Clostridium* from lincomycin treatment. Severe enteritis and enterocolitis may lead to diarrhea and death. Other bacteria also have been implicated in this reaction, such as *Salmonella* spp. or *E. coli*. In cattle, oral administration at concentration as low as 7.5 ppm in feed has resulted in inappetence, fatal diarrhea, ketosis and decrease milk production. When encountered with these cases, one must suspected to toxicant agent that caused gastroenteritis such as Arsenic toxicity, Carbamate toxicity, Molybdenum toxicity, Monensin toxicity, Mustard family (rape, kale) toxicity, Nonprotein nitrogen toxicity, Oak poisoning, Organophosphate toxicity, Selenium toxicity and lincomycin toxicity. With consideration of client history, clinical indicators, epidemiology of each toxicant and ancillary test findings The diagnosis of lincomycin toxicity was made and with above mentioned either of them recovered in four and five days.

**Keywords:** Lincomycin, toxicity, dairy, cows, adverse effect.

### Effects of Corticosteroids on Dinitrochlorobenzene (DNCB)-induced Delayed Type Hypersensitivity (DTH)

#### Reaction in Mouse

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**Objectives:** Corticosteroids (CSs) are among the most important drugs used in the treatment of enormous inflammatory conditions of the eye, skin and other organs as well as suppression of the immune system in the autoimmune diseases. In the present study, the effects of a typical CS, triamcinolone (TCN) was evaluated in the development of a dinitrochlorobenzene (DNCB)-induced delayed type hypersensitivity (DTH) reaction in the mouse.

**Materials & Methods:** Male mice were anesthetized using diethylether and shaved on their back. On days 0 and 1, 400 µl of DNCB (5 mg/ml) or vehicle (a 4:1 solution of acetone: olive oil) was applied topically on the skin. On days 5, 10, or 14, the animals received 200 µl of the vehicle or DNCB (2 mg/ml) on their ears. The mice were killed by ether 2, 24, or 48 h after the challenge, and their ears were cut off, weighed, fixed in formaline and examined microscopically.

**Results & Conclusion:** Both in control and test animals, challenge with DNCB raised the ear weight; however, after 48 h, the swelling (36%) persisted only in the male mice. Twenty four h after challenging with DNCB (but not with the vehicle), exudation together with an inflammatory cell infiltration were detectable in the ear. Topical administration of TCN 12 h before and 1 h after the DNCB challenge prevented ear swelling. It is concluded that topical application of CSs such as TCN may prevent the induction of the DTH reactions induced by haptens.

**Keywords:** DTH reaction, Corticosteroids, Mouse, Hapten, Triamcinolone



### Effect of Co-trimoxazole on sub-clinical form of gastrointestinal salmonellosis in Tehran pet dogs

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**Objectives:** It is well documented that salmonellosis is the most common zoonotic disease. It can be manifested in clinical, subclinical and carrier forms. Due to huge demand for having pet animals in the recent years this study was conducted for the first time within the past 25 years.

**Materials & Methods:** 65 healthy dogs were included in the study. There was no age and breed limit. This study was carried out in Tehran pet hospital. 43 dogs were males and 22 were females from which 12 were puppies. Rectal swabs were taken from dogs and transferred to microbiology lab of Shahid Beheshti medical university. Routine bacteriologic tests were performed and antibiogram was done on isolates.

**Results & Conclusion:** The findings showed that 2 adult female dogs were subclinically affected. For antibiogram gentamicin, co-trimoxazole, ciprofloxacin and ceftriaxone were tested. The isolates showed the maximum sensitivity against co-trimoxazole and known as drug of choice. Unfortunately, dogs were not followed up in order to and reevaluate the results. For the first time after 25 years it showed that co-trimoxazole was the best antibiotic to treat subclinical form of gastrointestinal salmonellosis in Tehran pet dogs.

**Keywords:** Salmonellosis, co-trimoxazole, pet dog, Tehran

### Effects of fumatiaceae plant extraction on control of *Trichostrongylus axei* in infected goats

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**Objectives:** Helminthes are important cause of reducing the body weight and producing the disease and anemia in young or debilitated animals. In this experimental research the effects of plant extraction of fumatiaceae on control of *Trichostrongylus axei* in infected goats, its effects on body weight gain and hematological parameters changes due to this parasitic infection in Ilam province were studied.

**Materials & Methods:** 24 local goats, 10-12 months old and with the average weight of 15.550 kg were divided in two groups (group 1 control and the group 2 as a experimental animal infected with *T. axei* (5000L3 orally) and after 10 weeks of parasitic infection the experimental group of animals were de wormed using 6ml/kg body weight fumatiaceae plant extraction. Plasma of blood sample was separated for determination of total protein, plasma total free amino acid and alkaline phosphates.

**Results & Conclusion:** Significant decrease in plasma total free amino acid, total plasma protein and significant increase in alkaline phosphates and acid phosphates were seen in infected group. Significant increase of body weight was observed in infected goats after 10 weeks of deworming the animal with experimental fumatiaceae plant extraction. Fumatiaceae plant extraction could be use as a dewormer and need further studies.

**Keywords:** *Trichostrongylus axei*, Plant extraction, Plasma protein, Goat.



### Histological assessment of worm infestation in sheep and treatment with two different plants extraction as anti helminthic and anti inflammatory medicine

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**Objectives:** Helminthes are important cause of reducing the body weight and producing the disease and anemia in young or debilitated animals. The study was conducted to obtain the effects of two type of plant extraction of fumariaceae on control of experimental multiple nematodes infection as a anti helminthes and *Scrophularia striata* plant extraction as a anti inflammatory of gastro intestinal tract(GIT) in lambs, and their effects on body weight gain, histological changes of GIT tissues of infection and after treatment with the plant extraction and hematological parameters changes due to parasite .

**Materials & Methods:** 24 lamb, 9-13 months old with the average body weight of 16.17.5 kg, were divided in two groups: group 1 (control) and group 2 (treatment) which were infected with multiple nematodes (6000L3) orally. After 8 weeks of parasitic infection the treatment group was treated with 3 ml/kg body weight fumariaceae plant extraction for one week. Plasma of blood sample was separated for determination of total protein, plasma total free amino acid and alkaline phosphates. Randomly animal were selected and slaughtered and GI tissues of already confirmed infected animals at the end of weeks 8th were collected and the remaining lambs were treated again.

**Results & Conclusion:** Marked hypertrophy and hyperplasia were observed in all parts of GIT of infected animals. An evident increase in crypts length and mitotic rate of epithelial cells were observed too. Villi were broad and appeared to be flattened in distal parts of small intestine of infected animal in comparison with treated group of the lambs after week 8 with the plant extraction of *Scrophularia striata*. Significant decrease in plasma total free amino acid, total plasma protein and significant increase in alkaline phosphates and acid phosphates were seen in infected group. Significant increases of body weight were observed in infected lambs on week of 10 treated the animal with plant extraction. Fumariaceae and *Scrophularia striata* plant extraction could be use as an anti helminthes and anti inflammatory agents but it needs further and extensive study.

**Keywords:** Anti helminthic and anti inflammatory, Plant extraction, Lamb, Histology.

### Hypoglycemic Effect of *Portulaca Oleracea* L. (POP) on Diabetic poultry and Antidiabetic activity of POP on Glucagon Decrease

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**Objectives:** In most diabetic poultry too much glucagon is produced. In diabetes affected birds the blood-glucose levels are elevated above 500 to 600 mg/dl and injectable insulin for human or chemical drugs are used which have variable side effects .Herbal medicines can solve the problem. In this study the effect of (POP) and its antidiabetic activity on alloxan induced diabetic poultry were studied and compared with NPH and Regular insulin.

**Materials & Methods:** Fifty four male Ross broiler chickens (20 days old) were obtained from a commercial poultry farm and randomly divided into six groups. While control (group 1) received physiology serum equal with other infusion ,group2 (diabetic) received Alloxon monohydrate (145mg/ kg) .Group3 (diabetic +Regular insulin) was like to group2 and received eight Unit Regular for five times and group4 (Alloxon monohydrate +POP) received alloxon (145mg/kg) in five times. Group5 (diabetic+ NPH insulin) received eight Unit NPH and group6 (diabetic+ (NPH+ Regular)) received four Unit for NPH and Regular.

**Results & Conclusion:** The results showed that POP in diabetes mellitus affected poultry significantly decreases the serum glucagon level .Birds with diabetes often drink excessive amounts of water with increased urine in the droppings that must be differentiated from diarrhea. At day 21 the birds were scarified and their pancreases were examined microscopically and pancreas cell count and size of island Langerhance determined. Data were statistically analyzed which demonstrated that POP at the dose of 400 mg/kg body weight (BW) exhibits optimal effect. The above results suggested that *P. oleracea* L can decrease significantly blood glucose in diabetic group.

**Keywords:** *Portulaca oleracea* L., Poultry diabetes, herbal insulin.



### Effect of watermelon rind (*Citrullus lanatus*) on feather pecking and dust bathing behavior of broilers during heat stress

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**Objectives:** Today, rearing organic poultry with no drugs and chemical additives is desirable. Vitamins A and C are natural antioxidant and watermelon is an excellent source of vitamins A, C, and B6. Watermelon is a good source of thiamine, potassium and magnesium. The feather pecking in broilers can cause high mortality and economical losses. Dust bathing may be a way that poultry use to lower their body temperature. Thus, the purpose of this study was to examine the effect of watermelon rind on feather pecking and dust bathing behavior of broilers on heat stress.

**Materials & Methods:** A total of 100, day old mixed-sex broiler chicks (Ross 308) were obtained from a commercial hatchery on the hatching day. The experimental design was CRD with 2 treatments and 5 replicates, 10 chicks in each replicate. Treatments included 2 levels of water melon rind pieces (0.00 and 50.00 g). Birds had access to watermelon pieces from 12:00 noon to 1:00 pm. Daily tests were recorded using a video camera. Data were analyzed via analysis of variance using GLM procedures. Differences among means were compared by Duncan's multiple range tests.

**Results & Conclusion:** Results of the present study showed that using watermelon rind in broiler feeding can lower feather pecking and dust bathing, 15 and 9% respectively ( $P < 0.05$ ). The birds that had access to watermelon pieces tend to consume more feed. In conclusion, using watermelon rind pieces (50.00 g weight) can reduce heat stress effect behaviors of broilers causing birds to spend more time to eat.

**Keywords:** Watermelon rind, Feather pecking, Dust bathing, Broilers

### Effect of pumpkin oil (*Cucurbita pepo*) on performance and mortality of Iranian Native Chickens during heat stress

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**Objectives:** After banning the use of most antibiotic growth promoters as feed additives by the European Union due to cross-resistance against pathogens and potential residues in tissues, scientists have sought for alternatives. Beneficial effects of herbal additives in animals may arise from activating feed intake and digestive secretions, immune stimulation and antibacterial, coccidiostatical, antihelmintical, antiviral or antiinflammatory activities. The study was conducted to examine the effects of Pumpkin oil on performance and mortality of Iranian Native Chickens.

**Materials & Methods:** A total of 120, three weeks old mixed-sex Iranian native chickens were used. The experimental design was CRD with 3 treatments and 4 replicates, 10 chicks each in every replicate. Treatments included 3 levels of pumpkin oil (0.00, 3.00 and 6.00 g kg<sup>-1</sup> DM, Barij esans Inc., Iran). The temperature of bird's house was 35 °C and birds had access to 16 hour light per day. The Data was analyzed via analysis of variance using GLM procedures. Differences among means were compared using Duncan's multiple range tests at 5%.

**Results & Conclusion:** Results of the present study showed that adding pumpkin oil to birds diets has no significant effect on performance ( $P > 0.05$ ). However, the birds feed conversion ratio trended to be lower than control group. Also, the mortality of birds fed with pumpkin oil was lower. Thus, supplementation of pumpkin oil in Iranians native chicken's diets can be advisable, due no non existence of adverse effect on birds' performance. It is recommended to evaluate bird's immunity parameters and stress hormones secretion such as cortisone in order to unveil the cause of decreased chickens' death.

**Keywords:** Pumpkin oil, Performance, Mortality, Iranian Native Chicken.



### Studying pathologic effects of Dexamethasone in Semnan villages' doves.

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**Objectives:** Glucocorticoids effects, as energetic substance, were studied in doves, reported as Acetate Teri semicolons effects including muscles atrophy, thorax muscle vacuolization, muscles and kidneys fatty degeneration and genital organ atrophy.

**Materials & Methods:** For studying pathologic effect of Dexamethasone in different organ of dove, 5 mg Dexamethasone was injected to pectoral muscle within a period of 21 days. 12 doves were kept as a control with approximate weight of 200-500 g under same condition.

**Results & Conclusion:** Necropsy finding of doves test group were found as follow :decreased body weight, skeletal muscle atrophy , splenic atrophy ,fatty change and hemosiderosis in liver, hyperemia and edema in lung , glomerular nephritis and acute tubular necrosis in kidney The injudicious use of Glucocorticoids, can create irreversible damage.

**Keywords:** Pit dove, Dexamethasone, pathology.

### In vitro anthelmintic activity of *Peganum harmala* against *Parabronema skrjabini*

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**Objectives:** *Peganum harmala*, or Syrian Rue, is the plant from which Harmine was first isolated, as well as a source of Harmaline and tetrahydroharmine. Total beta-Carboline content runs almost 4% by weight in the seeds of Syrian Rue. The objective of the present study was to determine the effect of *P. harmala* extract compared with Levamisol on *Parabronema skrjabini*.

**Materials & Methods:** In this study, the in vitro anthelmintic activity of three extract of *Peganum harmala* against *Parabronema skrjabini* was investigated and compared with Levamisol. The aqueous extract was used and extract was evaluated at three concentrations (25, 50 and 75 mg/ml). Levamisole was used in three concentrations (5, 50 and 500mg/ml). PBS was used as negative control. During experiments, the inhibition of motility rate of the worms during 10 hours post exposure used as the benchmark for anthelmintic activity of the extract

**Results & Conclusion:** The results showed that 75 mg/ml of the water solvable extract of *Peganum harmala* had the same anthelmintic effects as 500 mg/ml Levamisol ( $P=0/175$ ). None of the worms were found to be dead or paralyzed during 10 hour post exposure with PBS.

**Keywords:** *Peganum harmala*, *Parabronema skrjabini*, in vitro.



### Effect of different concentrations of *Nigella sativa* extract on *Escherichia coli* and *Staphylococcus aureus* culture

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**Objectives:** *Nigella sativa* (Black seed) is a plant which has been known for its medicinal and culinary features and reported to possess a number of pharmacological properties including antimicrobial activity. The aims of present study were to evaluate the effect of addition of *Nigella sativa* extract in *Escherichia coli* and *Staphylococcus aureus* culture medium.

**Materials & Methods:** *S. aureus* and *E. coli* were propagated in Nutrient broth at 37°C for 24h. Two transfers were made prior to inoculation; the cfu/ml was determined using Mannitol Salt Agar and Mac Conkey Agar as a selective media for *S. aureus* and *E. coli*, respectively. *Nigella sativa* extract was used in three concentrations. Study groups were includes: 1) Control, 2) 1% extract, 3) 2% extract and 4) 4% extract. Cultures were examined for TBC, *E. coli* and *S. aureus* count in 2, 4, 6 and 8 days of culture.

**Results & Conclusion:** Results showed that there was significant decrease ( $P<0.05$ ) in TBC, *S. aureus* and *E. coli* count in cultures treated with *N. sativa* extract (1%, 2% and 5%). The most effective concentrations were 2 and 4% and there were no significant differences between these levels. Several studies in vitro referred to the antibacterial effect of extracts and oil of black seed primarily beholden to the presence of Thymoquinone TQ (2-isopropyl-5-methylbenzoquinone) which considered as one of the major components of *N. sativa* volatile oil which also exists in the fixed oil. Antibacterial effect of TQ was due to the inhibition of RNA and protein synthesis, as well as  $\alpha$ -Pinene which also present in *N. sativa* volatile oil and exerts antibacterial action. Present study suggested that *Nigella sativa* extract (2%) could be used as natural antibacterial agent in food industries and other fields.

**Keywords:** *Nigella sativa*, *Escherichia coli*, *Staphylococcus aureus*.

### Detection of residual oxytetracycline in rainbow trout meat in

Shahre-kord, Iran

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**Objectives:** Antibiotics are widely used in several animal species including aquatic animals to control and treat diseases and as feed supplements (feed additives) for growth promoting. There is a global concern about the consumption of antimicrobial residues in aquatic foods and the effects of these residues on human health. The aim of this study was to screen the residual oxytetracycline in rainbow trout in Shahre-kord markets before and after cooking.

**Materials & Methods:** In this sectional study in 2009, after randomized collection of 50 fish samples in Shahre-kord markets during six months period, the samples were prepared and examined for residual oxytetracycline antibiotic using a high-performance liquid chromatographic analytical method before and after frying.

**Results & Conclusion:** The mean of the residual oxytetracycline antibiotic before and after frying samples was found above MRL. The mean amount of oxytetracycline was  $2601 \pm 1472.8$  and  $1212.4 \pm 1009.1$  ng/g before and after frying respectively. These findings showed that all samples were contaminated with residual oxytetracycline antibiotic before frying. Therefore, it is recommended to exert more control on fish farms and compliance with withdrawal period and combat against abuse antibiotics.

**Keywords:** Oxytetracycline, rainbow trout, residue, HPLC.





### Effects of Meloxicam in epidural analgesia in dogs

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**Objectives:** Epidural analgesia is one of the effective and common practices used to induce analgesia in rear limbs and perineal region during orthopedic or obstetric problems in animals to manage either acute or chronic pain. The following study was designed to evaluate the analgesic efficacy of an epidural meloxicam versus epidural meloxicam/lidocaine and lidocaine in dogs.

**Materials & Methods:** Fifteen healthy mixed-breed dogs, from both sexes were divided into three groups randomly. Lumbosacral epidural analgesia was performed in all dogs in the following order: Lidocaine (0.2 mg/kg) in group one, Meloxicam (0.1 mg/kg) in group two and the combination of both drugs in group three. Heart rate/min, Respiratory rate/min, body temperature were recorded every 20 minutes. Also time lapse to onset analgesia and duration of analgesia and flaccid paralysis were recorded in all dogs. Data was analyzed using SPSS/ANOVA and Student T-Test.

**Results & Conclusion:** No significant difference was observed in mean heart rate, respiratory rate and body temperature in all groups ( $P > 0.05$ ). Duration of analgesia was significantly lower in group two ( $59 \pm 15$ ) compared with group one ( $109 \pm 10$ ) and group three ( $147 \pm 24$ ) ( $P < 0.05$ ). No significant different was reported in relation to time to onset of action of the drugs ( $P > 0.05$ ). Also paralysis did not occur in group two since meloxicam can only block sensory neurons unlike motor neurons. It was concluded that meloxicam is effective in producing epidural analgesia in dogs and no recumbency should be expected during analgesia. Also the drug cannot enhance the duration of analgesia produced by lidocaine.

**Keywords:** Epidural analgesia, Lidocaine, Meloxicam, Dogs.

### Effect of Jelly fish toxin on mice.

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**Objectives:** Jellyfish belongs order Rhizostomea the lives in Drkhlyj Gulf and Oman Sea The poisons from the body of this jelly fish Drylyy is removed. The study was conducted to assess the effect of the poison on mice.

**Materials & Methods:** Jelly fish toxin was extracted from the venom with a mixture of amoxicillin and kept for three days in a cool place and then the solution is passed through filter paper to exclude the impurities under completely sterile conditions. The solution was injected to mice. Five mice as the control group and three treatment five mice groups were used in which different toxin concentrations were employed.

**Results & Conclusion:** The toxin can cause death in mice. In treatment group received 0.6 ml of toxin, the mice died away during three to four hours but in 0.2 ml toxin received group the death occurred in three days. The symptoms include short breathing, palpitation, drowsiness, lack of motion, blood in chest area, disruption of lung and liver, coagulation, necrosis, hepatitis, hyperemia, pneumonia, edema in the brain and encephalitis.

**Keywords:** Mice, Does, Jellyfish.



### Serogrouping and Drug Resistance Analysis of *Salmonella* spp. Isolates from Broiler flocks

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**Objectives:** Characterization of *salmonella* spp. isolated from broiler chickens in Amol via serogrouping and drug resistance analysis to 7 commonly used antibacterial agents in Iranian poultry industry.

**Materials & Methods:** 226 pooled samples were collected from 26 broiler flocks at different ages in Amol. Standard culture method was employed for *Salmonella* isolation. The slide agglutination test was done using polyvalent antisera and different A-I serogroup-specific somatic antisera. Susceptibilities to 7 commonly used antibacterial agents in Iranian poultry industry (danofloxacin, enrofloxacin, flumequin, neomycin, florfenicol, linco-spectin, tetracycline,) were tested by determining the MICs using agar dilution method.

**Results & Conclusion:** Sixty two *Salmonella* were isolated from 26 broiler flocks and 226 pooled samples. Twenty five *Salmonella* from one day old chicks, 15 *Salmonella* from broiler flocks at 1-3 weeks and 22 *salmonella* from broiler flocks up 5 weeks were isolated. Fifty *Salmonella* isolates from broiler belonged to group D and 11 isolates belonged to group C. One *Salmonella* was found as an unknown serogroup. The resistance patterns of 62 isolates to 7 common commercial antibacterials in poultry industry of Iran were included 17 different patterns. 5 isolates were resistant to all 7 antibacterial agents. The highest resistance was associated with tetracycline and linco-spectin. This study could suggest a high incidence of *Salmonella* in broiler flocks in Amol with high rates of drug resistance that could be seen as potential of resistant *Salmonella* transfer to human.

**Keywords:** Drug resistance, Antibacterials, *Salmonella*, Serogrouping, Broiler.

### Cardiac arrhythmia due to furosemide induced hypokalemia in Iranian fat-tailed sheep

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**Objectives:** Acid-base and electrolyte imbalances can influence cardiac rate and rhythm. Electrolyte abnormalities have become an increasingly important cause of arrhythmias owing to the widespread use of high-potency diuretics. Furosemide is one of the routine diuretics using in large animal practices. The present study was designed to evaluate cardiac arrhythmia(s) due to intravenous furosemide administration in Iranian fat-tailed sheep.

**Materials & Methods:** Nine Iranian Fat-tailed sheep (1 year old and 25 kg body weight) were selected for this purpose. None of sheep had clinical signs of cardiac diseases. The electrocardiogram (ECG) was recorded on a bipolar base apex lead using limb lead I by alligator-type electrodes. ECG recording and blood sampling were performed from all animals before furosemide administration followed by drug injection. All animals received furosemide (Vetasomide®, Aburaihan CO., Iran, 10mg/kg BW, IV) and blood sampling and ECG recording were performed 2 and 4 hours later. Sodium, potassium and Chloride concentrations were evaluated in all sera.

**Results & Conclusion:** The results of the present experiment showed that 66.6% of animals had sinus arrhythmia and this arrhythmia was more severe at time 4 than 2. Some ECG changes were detected comprising prolongation of the QT interval. Furthermore, prolonged durations of the P wave and QRS complex were observed. The most important finding in sera was hypokalemia. Serum potassium concentrations at time 4 ( $2.1 \pm 0.1$  mEq/L) were significantly lower than control sera ( $4.2 \pm 0.2$  mEq/L;  $P < 0.05$ ). Hypokalemia is one of the common complications of furosemide use. During hypokalemia, conduction in most parts of the heart was suppressed to an extent depending on plasma potassium concentrations. According to the other similar researches on human, dog and rat, hypokalemia is the common cause of ECG changes due to furosemide administration.

**Keywords:** Cardiac arrhythmia, Furosemide, Hypokalemia, Iranian fat-tailed sheep.



### Hydrocortisone acetate ophthalmic ointment for treatment of keratoconjunctivitis due to *Mycoplasma* spp. in Holstein dairy calves

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**Objectives:** *Mycoplasma* spp. has been associated with, without necessarily being the cause, outbreaks of infectious keratoconjunctivitis of cattle, sheep and goats. Swelling and redness of the conjunctiva, excessive tearing, and squinting are the initial clinical signs. The mycoplasmas are capable of producing keratitis experimentally and *M. bovis* has been isolated from the ocular discharge of young cattle affected with conjunctivitis. The aim of the present study was to evaluate the efficacy of hydrocortisone acetate ophthalmic ointment on treatment of keratoconjunctivitis due to *Mycoplasma* spp. in Holstein dairy calves around Shiraz.

**Materials & Methods:** The present study was carried out in fall 2009 on 16 Holstein dairy calves (aged between 2-3 months old) affected by keratoconjunctivitis around Shiraz. Animals were randomly assigned in to 2 treatment groups. In treatment 1, calves (n=7) received oxytetracycline 5% (5 mg/kg, i.m, daily) and flunexine meglumine 5% (2.2 mg/kg, i.m, daily) until 7 and 4 days; respectively. In treatment 2, calves (n=9) were injected the same drugs plus hydrocortisone acetate 1% (ophthalmic ointment, 0.5 gram/day) till 7 days. Animals were monitored for 7 days after last treatments.

**Results & Conclusion:** The results of the present study showed that the improvement rate in group 2 was faster and sooner than group 1, significantly (8 days in group 2 vs. 13 in group 1,  $P \leq 0.05$ ). Conjunctivitis improvement and healing was the landmark to evaluate improvement rate in patients. Oxytetracycline has been shown to clear mycoplasmas from the infected eye within 24 hours. Flunexine meglumine removed the pain from lesions and acted as a systemic antipyretic drug. Hydrocortisone acetate exerts a marked anti-inflammatory action at the tissue level and effectively suppresses inflammation in many disorders of the anterior segment of the eye. Local application to the eye often gives rapid relief of pain and photophobia, particularly in lesions of the cornea and conjunctiva. It was concluded that, using hydrocortisone acetate ophthalmic ointment could be effective to improve keratoconjunctivitis lesions in infected calves.

**Keywords:** Keratoconjunctivitis, *Mycoplasma* spp., Hydrocortisone acetate, ophthalmic ointment, Treatment.

### Ivermectin intoxication in two Holstein dairy calves

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**Objectives:** Ivermectin is a broad spectrum agent activated against many parasitic helminthes and arthropods. It is administered at dosage 0.2 mg/kg, orally or subcutaneously to cattle. Since ivermectin has at least a 10-fold safety margin in ruminants, its toxicity is rare. The toxicity of this drug has already been reported in horses, dogs particularly collies, kitten as well as zebra but there are no reports in calf.

**Materials & Methods:** Two 1-month old, female Holstein dairy calves (50 kg BW) were referred to Veterinary Clinic of Shiraz University in May 2008. Clinical examinations revealed ataxia, lethargy, restlessness, respiratory efforts and tachypnea, tachycardia (120 beats/min.) and mild elevated rectal temperature (39.8°C). Injecting 15 milliliter ivermectin (Erfamectin 1%; Erfan CO; Iran) intramuscularly 24 hours before, was indicated from history-taking.

**Results & Conclusion:** Hemogram of these animals showed a stress leukogram pattern (leukocytosis, neutrophilia and lymphopenia). Cerebrospinal fluid expelled at a high pressure, via insertion of the needle point in lumbosacral space. Despite intravenous fluid and sedation therapies, both died the next day with the clinical signs of depression. Ivermectin is generally a safe compound for mammals because it cannot cross the blood-brain barrier (BBB) and affect neuronal gamma aminobutyric acid (GABA) receptors. The exception is collie type dogs, which appear to have a less effective barrier and resulting increased susceptibility to ivermectin intoxication. Any species can be affected if the dose is large enough to cross the BBB. In cattle, ivermectin should be given only by oral and subcutaneous routes and in recommended dose also. A 10-fold overdose causes occasional mydriasis in dogs treated orally and, if given orally on 2 consecutive days to horses, result in transient impaired vision. Sheep tolerate oral doses of the drug up to 4 mg/kg without adverse reaction. Ivermectin is a GABA agonist that increases the effects of inhibitory neural pathways in the central nervous system and causes depression and stupor. In these cases neither route nor dosage were not considered.

**Keywords:** Ivermectin, Intoxication, Holstein calf.



### Preventing sub-clinical bovine mastitis using a post-milking teat disinfectant containing iodophor

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**Objectives:** Mastitis is the inflammation of the parenchyma of the mammary gland regardless of the cause. It is characterized by a range of physical and chemical changes in the milk and pathological changes in the glandular tissue. A large proportion of mastitic glands are not readily detectable by manual and visual examination of the udder and milk. These quarters represent sub-clinical infections. The control of bovine sub-clinical mastitis has a high economic importance in dairy farms. The present study was conducted to evaluate the post-milking teat dipping in a disinfectant containing iodophor to prevent sub-clinical bovine mastitis.

**Materials & Methods:** The present study was conducted in summer 2010 on 174 Holstein dairy cattle in 4 commercial dairy farms around Shiraz. All cows were maintained in open-shed barns and milking program was performed 3 times daily. The average of milk production of each cow was 31.5 Kg/day. Animals were divided into 2 groups; Teats of group 1 (n=82) were dipped after each milking in iodophor (Behsa iodine®, Behsa Pharmaceutical CO, Iran) and the teats of group 2 (n=92) were not. California Mastitis Test (CMT, Shirazma®, Iran) was performed for each cow weekly until 4 weeks.

**Results & Conclusion:** The results of the present study showed that the number of sub-clinical cases in group 1 was lower than group 2 significantly (7.3% vs. 35.8%;  $P \leq 0.05$ ). Teat dipping is a simple, effective and economical means to reduce bacterial populations on teat skin. There is general agreement that the numbers and types of bacteria on teat skin have a direct relationship to the incidence of intra-mammary infections that develop in a herd. An effective teat dip, correctly used, will reduce the incidence of new udder infections. Long-term intensive programs of teat dipping and dry cow sanitation will markedly reduce the prevalence of many bacteria in the mammary glands and teat ducts. Iodophor teat dips have been used extensively and marketed in a variety of formulations, ranging from 0.1-1.0% available iodine. The safety and efficacy of these products are well established. The results of the present study suggested that the dipping of all teats in iodophor compounds is effective in preventing sub-clinical mastitis in dairy farms.

**Keywords:** Bovine mastitis; Sub-clinical; Control; Post-milking teat dipping.

### First report of metoclopramide toxicity in a Holstein dairy cow

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**Objectives:** Metoclopramide is used in large ruminant to stimulate the motility of the upper gastrointestinal tract. Metoclopramide increases peristalsis of the small intestine and increases tone and strength of contractions in the stomach while causing relaxation of the pyloric sphincter. Consequently, metoclopramide speeds gastric emptying and, possibly, intestinal transit times. It is administered at dosage 0.1 mg/kg, intravenously for treatment of such gastrointestinal problems to cow. At high doses or with rapid intravenous administrations, metoclopramide may cause clinical signs of intoxications. Metoclopramide toxicity has not been reported in cow, yet.

**Materials & Methods:** A 5-year old Holstein dairy cow (500 kg BW) with a history of right displacement of abomasum was referred in January 2008 to Veterinary Clinic of Shiraz University. Administrations of intravenous fluid, electrolytes and calcium therapies were performed by owner. The cow was received intravenous metoclopramide at dosage 1 mg/kg 4 hours before, also. Clinical examinations revealed central nervous system signs such as ataxia and restlessness.

**Results & Conclusion:** Several hours later, she backed into the normal condition with fluid and sedative therapies. The present case is the first report of metoclopramide toxicity in Holstein dairy cattle. Metoclopramide appears to bind to dopamine D2 receptors where it is a receptor antagonist, and is also a mixed 5-HT<sub>3</sub> receptor antagonist/5-HT<sub>4</sub> receptor agonist. The prokinetic activity of metoclopramide is mediated by muscarinic activity, D2 receptor antagonist activity and 5-HT<sub>4</sub> receptor agonist activity metoclopramide penetrates the central nervous system (CNS) well, which may be relevant because of CNS extra pyramidal side-effects. It has a high LD<sub>50</sub> and, as a consequence, it is unlikely that an overdose will cause death. Overdose will cause similar but more severe clinical signs. Signs of neurotoxicity were reported in both dogs and cats at therapeutic levels. These signs usually will resolve within a few days of discontinuing the metoclopramide. CNS side-effects, alternating both sedation and excitement, and colic may occur with intravenous administration, in horse. Side effects are less common in foals. Extra pyramidal signs can be counteracted with an antihistamine such as diphenhydramine.

**Keywords:** Metoclopramide, Toxicity, Holstein dairy cow.



### Treatment of oral lesions of contagious ecthyma in *Camelus dromedarius* using concentrated extract of pomegranate

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**Objectives:** Contagious ecthyma (contagious pustular dermatitis, sore mouth, orf) is a parapox viral disease. Contagious ecthyma primarily affects the epidermal structures of the nose and lips of sheep and goats. Other susceptible species include musk-oxen, wild sheep, Rocky Mountain goats, camelids and humans. Young camels (calves) are typically susceptible animals. Typical proliferative epidermal lesions at the commissures of the mouth have been seen in camelids. The present study was performed to evaluate the complementary effects of concentrated extract of pomegranate (CEP) on treatment of oral lesions of contagious ecthyma in calves (*Camelus dromedarius*) in Yazd province.

**Materials & Methods:** The affected calves (n=14) aged between 2 to 4 month old and were randomly divided into 2 groups. Group 1 (n=6) treated with injection of flunixin meglumine (%5, 1.1 mg/kg) and broad spectrum antibiotics (Oxytetracycline 10%, 10 mg/kg). Group 2 (n=8) received the same treatment for group 1 plus local application of the CEP (%40) for treatment of oral lesions. Treatments were continued for at least 5 days. Monitoring the healing process of the oral lesions continued till 10 days.

**Results & Conclusion:** Monitoring the healing process of the oral lesions showed significantly a more rapid healing of oral lesions in Group 2. Pomegranate extract is primarily composed of alkaloids and polyphenols. The active constituent that appears to be responsible for its multiple health benefits is ellagic acid. Ellagic acid is a naturally occurring phenolic compound found in several fruits and nuts. Pomegranate extract has demonstrated a variety of beneficial functions including antioxidant and anti-viral activity. Pomegranate extract can destroy several viruses nearly on contact. Ellagic acid effectively protects cells from damaging free radicals. Additional phenolic compounds found in pomegranate known as anthocynadins combine synergistically with ellagic acid to greatly augment pomegranate's potency as an antioxidant. Ellagic acid has been shown to induce the production of phase 11 detoxification enzymes through its manipulation of gene expression. With an increased concentration of these enzymes, various tissues ability to detoxify harmful compounds is augmented. Ellagic acid was found to be a potent inhibitor of tyrosine protein kinase, a molecule whose activity has been associated with the ability of certain viruses to transform normal cells into cancerous cells. It seems that the use of CEP has a direct effect on lowering virus concentration.

**Keywords:** Contagious ecthyma, concentrated extract of pomegranate, Calf, *Camelus dromedaries*.

### Studying effect of changing Post Milking Teat Dipping (PMTD) on Bulk Tank Somatic Count (BTBC) in dairy farms

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**Objectives:** Contagious and environmental bacteria are current cause of mastitis and Bulk Tank Bacteria Count (BTBC). Since beside other hygienic procedures related to controlling mastitis, post milking teat dipping (PMTD) with a suitable teat antiseptics has a special place and can play an important role in the kind of herd mastitis and decrease in Total Bacteria Count (TBC), this study was conducted to find the effect short-time change type of PMTD on the Bulk Tank Bacteria Count (BTBC).

**Materials & Methods:** This study was conducted in two large dairy farms in four period in Tehran Province during 1<sup>st</sup> semester of 2010. The employed antiseptics was iodophor. In each four period after the last time that iodophor was used, bulk tank milk sample was collected and three tests including Bulk Tank Somatic Cell Count (BTSCC), milk quality tests and bacterial isolation were performed in an equipped laboratory. Then, antiseptics was replaced with chlore components for at least 2 week. At the end, another bulk tank milk sample was obtained and sent to the laboratory.

**Results & Conclusion:** The results revealed that short-time use of chlore components in PMTD, can decrease Total Bacteria Count, Coliforme Count, Preliminary Incubation Count, Laboratory Pasteurized Count, Staphylococcus Count and Streptococcus Count and therefore increase the quality of milk and reduce intramammary infections.

**Keywords:** Mastitis, post milking teat dipping (PMTD), iodophor teat dip, chlore teat dip.



### Effects of Ampicillin on Gentamicin-induced Nephrotoxicity in Rat

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**Objectives:** Gentamicin is a broad spectrum antibiotic which is widely used for the therapy of serious infections caused by gram-negative aerobic bacteria. Its clinical use, however, is limited due to the risk of drug-induced nephrotoxicity. Agents which reduce its nephrotoxic effect could help to make gentamicin therapy safer. Present study aimed to study the effect of ampicillin on gentamicin induced nephrotoxicity in rat.

**Materials & Methods:** 40 male rats with body weight ranged from 290 to 310g were randomly divided in four groups. In groups one and two gentamicin was given IM for 9 consecutive days at the dose of 5 or 10mg/kg, respectively. Rats in group three received 10mg/kg gentamicin intramuscularly and 50mg/kg ampicillin subcutaneously for 9 successive days. Rats in group four (control group) received no drug. 3 days after last injection, rats were anaesthetized and blood samples were collected. They were sacrificed and histopathological samples of liver and kidney were taken on 10%

**Results & Conclusion:** The level of BUN and creatinine increased in experimental groups 1 and 2 compared to control and experimental group 3, however, this elevation was only significant in group two ( $p < 0.05$ ). Histopathological investigation of kidney in experimental groups one and two showed tubular hemorrhage, interstitial nephritis, acute tubular necrosis. There was no histopathological abnormality in liver of any group. The protective effect of ampicillin could be ascribed to its inhibition of  $\beta$ -glucuronidase, an enzyme which is located in renal lysosomes and activated by gentamicin and other aminoglycosides.

**Keywords:** Gentamicin, nephrotoxicity, ampicillin, Rat.

### Effects of Tulathromycin (Draxxin) on contractility of Isolated Myometrium in Rats

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**Objectives:** Macrolides have different effects on smooth muscle contractility Tulathromycin (Draxxin) is a macrolide, but its effects on the uterus have not been studied and only its antibiotic properties have been considered in the treatment of pneumonia. The objective of this study was to characterize in vitro the effect of tulathromycin (Draxxin) on the contractility of the non-pregnant rat uterus.

**Materials & Methods:** Myometrial strips from non- pregnant rats were suspended in tissue baths Isometric contractions were monitored by force transducers in response to various agents that were added to the bath solution.

**Results & Conclusion:** Tulathromycin exposure caused a decrease in phasic contractions induced by oxytocin or carbachol. This effect started at 1 mmol/L. At 1 mmol/L tulathromycin reduced the contractions amplitude to 25% of the control. It was concluded that tulathromycin produces an increase in the non-pregnant rat myometrial activity in vitro.

**Keywords:** Tulathromycin, myometrium, rats, Macrolide, Draxxin.



### Study of using mineral and organic toxin absorbants effect on blood, immunity, liver histopathology and function in Aflatoxicosis affected broilers

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**Objectives:** Over 25% of world's cereals are contaminated with fungi and the devastating impact of Mycotoxins on immunity system and function are yet proven. The most prevalent and destroying Mycotoxins is Aflatoxin. Therefore, the existence of Aflatoxin in animals and human being foods is a huge disaster and it makes us to think of advanced technology to avoid that. For reduction of Aflatoxins effects two substances were used, individually and simultaneously (in the combined form): 1-Organic toxin absorbant (yeast cell wall or MOS) 2- Mineral toxin absorbant (sodium bentonite).

**Materials & Methods:** To provide Aflatoxin in broilers' supplementation, the corn was stored for 20 days at 35° C, in a dark barn. Samples of *Aspergillus parasiticus* which contains Aflatoxin were added to broilers supplementation. During the experiment all factors were fully evaluated: Quantity of eaten food, body weight, and food conversion rate, antibody titer against Newcastle disease, blood parameters such as uric acid, triglycerides, cholesterol, and blood enzyme of AST, ALT, ALK and liver histopathology. The antibody titer against Newcastle disease was evaluated on days 21, 28, 35, 42. Also blood biochemistry parameters were studied on day 42. All blood samples were sent to laboratory to prepare slides.

**Results & Conclusion:** Aflatoxin inhibits the RNA-polymerase synthesis by connection to RNA and DNA, so it provides liver and kidney necrosis. Moreover, it increases free-aminoacid in urine and plasma that suppresses protein and antibody synthesis. Also Aflatoxin decreases T-lymphocytes. The two absorbants that mentioned in objectives are toxin-absorbants so absorb and eliminate toxin through digestive system. Furthermore, because of bad flavor of Aflatoxin, the feed intake decreased culminated to weight loss and increase of feed conversion rate. All results clearly showed that yeast cell wall or MOS had good results in terms of mentioned elements. Aflatoxin leads to fat degeneration, hepatomegaly, necrosis and intracellular carcinoma. In order to decrease the histopathological effects of Aflatoxin, yeast cell wall or MOS is much more effective than sodium bentonite statistically. The use of 0.1% of yeast cell wall or MOS had better results in triglycerides titer according to Kubena and colleagues (1993) and in ALT, ASP, ALP, according to Aguz and colleagues (2004). These results complied in terms of antibody titers, food consumption, weight increase, food conversion rate and histopathological results.

**Keywords:** Mineral and Organic Toxin, Aflatoxin, Broilers, Iran.

### Effects of Clarithromycin on Electrocardiogram Findings in Cat

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**Objectives:** It is well known that Clarithromycin is a Macrolide which is used as an effective antibiotic in feline medicine. The main purpose of the present study was to determine the effects of Clarithromycin on feline electrocardiogram findings.

**Materials & Methods:** A total of 12 adult domestic short hair cats were randomly selected and divided in to 2 groups (6 cats each) for the following treatments: 1) control group received placebo each 12 hours for 10 days. 2) Experimental group received 7.5 mg/kg Clarithromycin orally each 12 hours for 10 days. Electrocardiogram was performed (lead II) before administration of Clarithromycin and during 5th, 10th and 14th days of the experiment. The data were analyzed using SPSS statistical software.

**Results & Conclusion:** The results of the ANOVA used in the comparison between the electrocardiogram findings during the experiment indicated that the QT interval in days 10 and 14 was significantly longer than before drug administration (day 0), whereas other findings such as P-R interval, QRS complex, R-R interval and etc. were not statistically significant in those days. The findings suggested that Clarithromycin had no important effect on electrocardiogram findings in cat so it can be used with caution in feline medicine.

**Keywords:** Clarithromycin, Electrocardiogram, Feline, Cat, QT interval.



### Analgesic properties of metoclopramide on postoperative pain following routine ovariohysterectomy in bitches

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**Objectives:** preventing and managing pain has become a fundamental part of compassionate animal care in veterinary medicine and many studies have been conducted to assess and control pain in animals. Application of effective and accessible drugs with less adverse effects plays an important role in veterinarians' attention to relieve pain in animals. The purpose of the present study was to evaluate the analgesic properties of the primary antiemetic drug, Metoclopramide, in controlling post operative pain following ovariohysterectomy in dogs.

**Materials & Methods:** Sixteen intact bitches weighting  $15 \pm 5$  kg were randomly placed into two equal groups. In group I, dogs received Metoclopramide (0.5mg/kg/IV) and in group II, they received similar volume of saline placebo (IV) prior to surgery. Under general anesthesia (acepromazine, thiopental Na and inhalation of 1.6 % isoflurane in oxygen), traditional midline ovariohysterectomy was performed in all dogs. Pain scores were recorded using a University Melbourne Pain Scale (UMPS) before surgery and at 0.5, 1, 3, 6 and 24 hours following surgery. All data were analyzed using SPSS software.

**Results & Conclusion:** The mean recovery time was significantly higher in group II ( $18.6 \pm 2.3$ ) compared with group I ( $11.4 \pm 2.3$ ) ( $p=0.001$ ). Median pain scores were significantly higher in group II than group I at all postoperative measured times except 24 hours following the surgery. The highest pain score was recorded at 3 hours after surgery which was 5 in group I and 8 in group II ( $P=0.026$ ). It is concluded that metoclopramide has analgesic properties and can alleviate postoperative pain following OHE in dogs during 6 hours after surgery. Following to injection of the drug, duration of recovery time is significantly decreased.

**Keywords:** Ovariohysterectomy, postoperative pain, metoclopramide, dog.

### Protective effect of Crocin on A $\beta$ 1-42 –induced neurotoxicity in primary rat basal forebrain neurons

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**Objectives:** Crocin, an active constituent of saffron (*Crocus sativus* L.) has widely been known for its antioxidant properties, which nominate this herbal compound to be of therapeutic value in the neurodegenerative disorders. Alzheimer's disease (AD) is a neurodegenerative disorder defined by misfolded protein accumulation and free radicals generation with concurrent neuroinflammation and neuronal death. Herein, it is reported that crocin is capable of protecting neurons against A $\beta$ 1-42 -induced oxidative injury and neuronal death in vitro ( $P<0.05$ ).

**Materials & Methods:** Primary rat basal forebrain neurons were cultured from 16 to 17 d-old embryos of pregnant Sprague–Dawley rats. Septal regions containing the basal forebrain neurons were dissected in Hank's balanced salt solution supplemented with 15 mM HEPES, 10 U/ml penicillin and 10 mg/ml streptomycin, dissociated using 0.05% trypsin, triturated and then plated on poly-D-lysine coated wells. Cultures were grown at 37°C with 5% CO<sub>2</sub> in a humidified atmosphere in Neurobasal medium supplemented with N2 Supplement.

**Results & Conclusion:** Experiments were performed 7 d after cell plating for 36 h using the fibrillar aggregated form of the  $\beta$ -Amyloid peptide (A $\beta$ 1-42) prepared using a 1 mM solution of A $\beta$ 1-42 peptide incubated in PBS at 37°C for 2-3 days. Incubating these neurons with crocin (1-200  $\mu$ M) could protect them from A $\beta$ 1-42 –induced toxicity in a concentration-dependent manner. These results underscore the potential therapeutic effects of saffron and its active constituent, crocin, in preventing or ameliorating the neuropathogenic outcomes of Alzheimer's and possibly other neurodegenerative disorders.

**Keywords:** Crocin, saffron, Alzheimer, oxidative injury.





### Comparison of using antiparasitic and immunostimulative doses of levamisole on hematologic parameters in dog

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**Objectives:** Levamisole has been shown to possess immunopotentiatory properties as well as a wide range of highly efficacious anthelmintic activities. One well-cited assertion literature is that levamisole has some clinical adverse effects. However, the effect of antiparasitic and immunostimulative dose of levamisole on hematologic parameters in dog has not been documented. The present study was designed to investigate the effects of orally administered levamisole on haematochemical profiles in dog and to compare any changes seen to those reported in human and other animals.

**Materials & Methods:** A total of 18 healthy dogs (2-3 years) were selected randomly. The dogs were randomly assigned in to 3 equal groups. Dogs in group 1 were given levamisole orally at a dose of 10 mg/kg of body weight for 6 days (antiparasitic dose). Dogs in group 2 were given levamisole orally at a dose of 1 mg/kg of body weight 3 times weekly for 2 weeks (immunostimulative dose). Group 3 were considered as control group. Blood samples were taken at various times after administration of levamisole and transferred to the laboratory for CBC analysis.

**Results & Conclusion:** Significant changes were observed among WBC count, absolute neutrophil count and MCV after 3, 4 and 5 days of antiparasitic dose of levamisole administration. Significant differences were observed in WBC count, absolute neutrophil, lymphocyte and monocyte count, RBC count, hematocrit, hemoglobin concentration, MCV and MCHC in dogs that were received immunostimulative dose of levamisole. The present study demonstrated that the immunostimulative dose of levamisole has significant and important effects on canine hematology parameters that are completely different from the effects of antiparasitic dose. The results suggested that clinicians should consider these important findings for interpretation of canine laboratory results. In addition, adverse effects of levamisole can be decreased considering these findings and early treatment. Further investigation is needed to identify the mode of action of immunopotentiators which is a highly complex mechanism within a complicated immune system.

**Keywords:** Levamisole, Antiparasitic, Immunostimulative, Dose, Hematologic parameters, Dog.

### Pulmonary Responses of Rats Exposed to Titanium Dioxide Nanoparticles Injected Intratracheally

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**Objectives:** Titanium dioxide (TiO<sub>2</sub>) nanoparticles are in wide commercial use worldwide. The present study was carried out to evaluate whether pulmonary toxicity and fibrosis can be induced by nano-TiO<sub>2</sub> particles.

**Materials & Methods:** 60 male rats were randomly divided in four groups. Rats in groups one, two and three were intratracheally instilled with 25, 50, or 100 mg/kg of 4-8 nm TiO<sub>2</sub> primary particles, respectively. Rats in group four (control group) received the same volume of normal saline, intratracheally. On days 15, 30 and 45 after injection, 5 rats from each experimental group were anaesthetized. Radiographic pictures were taken and rats sacrificed. Blood samples were collected and blood pictures and serum activity of LDH and ALP were determined according to routine laboratory methods.

**Results & Conclusion:** The results showed significant difference of total WBC, Lymphocytes, monocytes, Granulocytes percentages and serum activity of LDH and ALP on day 15 of experiment. Moreover, histopathologic and radiographic examination of lung tissues indicated that the pulmonary response to exposure to TiO<sub>2</sub> particles in rats manifested as dose-dependent inflammatory lesions, which mainly consisted of infiltration of inflammatory cells and interstitial thickening. These results suggested that exposure dose may have important role in pulmonary toxicity. Moreover, the present study showed that inflammatory effects of TiO<sub>2</sub> nanoparticles sustained for a limited time and rat recovered from these effects after a length of time.

**Keywords:** Nanoparticle, Titanium Dioxide, Rat, Pulmonary Response.



### Interaction between Gentamicin and Mycophenolate Mofetil in experimentally-induced pyelonephritis in rat

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**Objectives:** Acute pyelonephritis (APN) is an inflammatory disease that leads to kidney malfunction. It happens in complicated and uncomplicated forms. This investigation was conducted to evaluate the impact of gentamicin (GEN) and ceftriaxone (CEF) alone and in combination with mycophenolate mofetil (MMF) on experimentally-induced APN.

**Materials & Methods:** Forty two Wistar male rats were assigned into 7 groups including -APN, +APN, +APN /+GEN, +APN/+CEF, +APN/+MMF, +APN/ +GEN + MMF and +APN/+CEF+MMF. APN was induced by injecting *E. coli* in the left kidney. The control and +APN groups were treated with normal saline while the other five +APN groups received GEN, CEF or MMF alone and/or in combination for two weeks. The hematological, biochemical and pathological examinations were performed to highlight the efficiency and possible interactions between given compounds.

**Results & Conclusion:** The elevated density of total white blood cells and increased level of creatinine and blood urea nitrogen (BUN) in +APN groups returned to normal levels following 14 days treatment with GEN and CEF. Interestingly, co-administration of GEN with MMF could not recover the APN-induced changes and resulted in a significant ( $P<0.05$ ) elevation of creatinine and BUN levels. Histopathological studies supported the biochemical findings as GEN and CEF alone could partly restore the APN-induced degeneration and leukocytic infiltration, while the combination therapy of GEN plus MMF failed to reduce the APN-induced damages. The antibacterial susceptibility test demonstrated that the used strain of *E. coli* was susceptible to GEN and CEF and showed no significant differences when the combination therapy was applied. These findings suggested that co-administration of GEN with MMF in APN may enhance kidney damages and the adverse effects of combination therapeutic regimen could be related partly to incompatibility of these compounds.

**Keywords:** Pyelonephritis; Gentamicin; Ceftriaxone; Mycophenolate Mofetil; *E. coli*; Combination therapy.

### Poisoned baits: a rising concern for animal health

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**Objectives:** In Europe, malicious animal poisonings are nowadays of concern for both the animal and human health. Focusing on Italy, this problem has been afforded at the beginning of this century. In this frame, a law ruling-banning the preparation, possess, and employment of poisoned baits, was adopted in 2001. Poisoned bait is a special threat to dogs and cats but it also kills birds of prey such as owls, kites and eagles, as well as foxes and badgers. The present study reports an overview on the different types of poisoned "hand made" baits found in 10 years of toxicological analysis.

**Materials & Methods:** Data for this retrospective study were taken from 508 pesticide based baits analyses ranging from January 1999 to December 2009. The presence or absence of a suspected pesticide in baits was investigated by validated laboratory methods using a solid-phase or liquid-liquid extraction followed by separation and characterization by chromatographic techniques. The analyses were carried out for organophosphorus and carbamate pesticides (CI), anticoagulant rodenticides (AR), zinc phosphide (ZP), strychnine (ST) and metaldehyde (MT). In the instance the bait was not positive for the above mentioned toxics; the sample underwent screening analysis in GC-MS.

**Results & Conclusion:** The baits found positive have been classified in 6 different: 1) baits prepared with discard or out of date food. Miscellaneous baits belong to this class and are the most frequent (n° 362, CI 52%; AR 19%; ZP 11%, ST 9%, MT 8%, other [OT] 1%). 2) laborious and original particular baits. This class groups baits that requested particular work and time in preparation, making them original (n° 85, CI 49%; AR 10%; ZP 21%, ST 2%, MT 12%, OT 4%). 3) baits containing more than one toxic substance. These baits are usually the most harmful for the animals (n° 39, CI 65%; AR 59%; ZP 20%; ST 35%; MT 12%; OT 9%). 4) baits containing non toxic material. The final intent to kill the animals is unfortunately well pursued by these baits, and for this reason this class has been inserted in the study (n° 15). 5) Baits prepared with non food material. This group is seldom used (n=6, CI 50%; ST 50%), but according to officer's reports it is a method apparently used from gypsies or other unscrupulous people to kill the guard dogs. 6) in vivo baits. This class had only a case reported.

**Keywords:** Poisoned baits, Veterinary toxicology, suspicious death, Poisoning, Lures.



### Determination of Naturally Occurring Estrogenic Hormones in Raw and Cooked Beef

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**Objectives:** Recent evaluation on the toxic and possible carcinogenic and or mutagenic effects of the steroids hormones shows that these hormones can have carcinogenic effects. These conclusions have initiated research on the determination of the concentration of steroids hormones (Estrone (E1), 17 $\beta$ -estradiol (E2), and estriol (E3)) and their conjugates metabolites in edible tissues. The purpose of the present study was to determine the levels of naturally occurring estrogens in beef in two follicular and luteal phases. Moreover, the effect of heating processes on the alterations of hormones levels was investigated too.

**Materials & Methods:** The collected meat (biceps femoris muscle) samples were subjected to the liquid extraction, enzymatical deconjugation, and C18 solid-phase extraction. Estrogens were analyzed using HPLC equipped to the fluorescence detector.

**Results & Conclusion:** The recovery percentages of  $77.86 \pm 6.41$ ,  $84.53 \pm 8.57$  and  $68.11 \pm 3.63$  were found for E1, E2 and E3 respectively. Free and deconjugated E1 ( $13.07 \pm 0.44$  and  $16.2 \pm 1.1$  ng/L) was the major estrogen followed by E2, while E3 level was under the detection limit (10 ng/L). The estrogens concentration in heated meat showed no significant ( $P > 0.05$ ) differences comparing with the raw beef. These data suggest that, undoubtedly, meat is one of the valuable nutrient sources for humans, there are however increasing concern about the safety of food due to the presence of steroid hormones. Moreover, as cooking of meat dose not alter the level of steroids, both raw and heated beef could raise concerns about the possible role of meat in carcinogenicity.

**Keywords:** Steroid hormones; Carcinogenicity; Natural; Meat; Bovine; HPLC.

### Antimicrobial susceptibility of Salmonella isolates from broiler farms around Sari in Mazandaran province

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**Objectives:** Salmonella infection in birds is very important because of its impact on poultry industry and the following public health concerns. Salmonellosis in poultry industry is an important cause of mortality and might be transferred to humans and domestic animals. The objective of this study was to evaluate the susceptibility of Salmonella isolates recovered from broiler farms around Sari city of Mazandaran province to a panel of 30 antimicrobial agents commonly used in human and veterinary medicine.

**Materials & Methods:** The susceptibility of Salmonella isolates obtained from 20 poultry farms (1200 fecal samples) around Sari city of Mazandaran province was determined against a panel of 30 antimicrobial agents using standard agar disc diffusion procedure (Kirby-Bauer method).

**Results & Conclusion:** All Salmonella isolates were susceptible to ceftriaxon, florfenicol, danofloxacin, levofloxacin, ofloxacin, imipenem, whereas were resistant to ciprofloxacin and ampicillin. The percentages of isolates that were found resistant to the other drugs include: carbenicillin and norfloxacin, each 80%, chloramphenicol and Gentamicin, each 70%, and Trimethoprim+sulfa, 60%. Multi-resistance was variable among the Salmonella isolates. All isolates were resistant to at least three antimicrobial agents. Sixteen percent of isolates exhibited multiple resistances to more than nine antimicrobial agents. The results of the present investigation showed that a high prevalence of resistance to antimicrobial agents common in poultry farms around city of Sari. Our findings are of concern for Iranian poultry industry and human health as well.

**Keywords:** Salmonella, Antimicrobial susceptibility, Broiler, Sari, Iran.



### Steroid Hormones in Beef and River Buffalo Meat

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**Objectives:** Although meat is one of the valuable nutrient sources for humans, there are however increasing concerns about the safety of red meat due to the presence of steroid hormones. Since the level of estrogens is affected by differences between species, nutritional, physiological and other environmental factors, hence this study was designed to measure and compare the level of steroid hormones (estrone (E1), 17 $\beta$ -estradiol (E2), and estriol (E3)) in beef and river buffalo meat in two distinct follicular and luteal phases. Moreover, the possible change effect of heating process on steroid hormones concentration has been surveyed too.

**Materials & Methods:** The 60 meat samples (biceps femoris muscle) taken from adult cattle (30 samples) and river buffalos meats (30 samples) in two distinct luteal and follicular phases were subjected to the liquid extraction, enzymatical deconjugation, and C18 solid-phase extraction. Estrogens were analyzed using HPLC equipped to the fluorescence detector.

**Results & Conclusion:** In follicular phase the levels of steroid hormones (E1 and E2) in either tested species were higher than luteal phase. Moreover, in the present study, E1 concentration (Free and deconjugated value:  $16.2 \pm 1.1$  ng/L) was found the highest phenolic estrogen in beef, while the dominant estrogen in the muscles of river buffalo was E2 (Free and deconjugated value:  $23.3 \pm 1.3$  ng/L). Differences in E1 and E2 levels between examined animals might be related to their muscles fat content and also to the solubility of tested hormones in lipophilic or hydrophilic media. The heating process did not change significantly ( $P < 0.05$ ) the level of estrogens. The further findings of the present study showed that E3 was only detectable in buffalo's meat ( $15.8 \pm 1.9$  ng/L). In conclusion, our results showed that these hormones are present in meat of two species and various patterns exist with regard to steroid hormones in these two animals.

**Keywords:** Steroid hormones; Food safety; River buffalo; Meat; Cattle; HPLC.

### Effect of Razianeh (Foeniculum) on steroidal hormones (progesterone& estrogen) and prolactin in female rats

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**Objectives:** In ancient time herbal drugs were employed as medication for human being and animals. Nowadays the of herbal drugs, especially Razianeh (Foeniculum) which with less side effects and more economical prices than chemical drugs attract the attention of many researchers.

**Materials & Methods:** In the current research the effects of Razianeh(Foeniculum) extract were studied using three different amounts on 100 rats in the weight ranges of  $250 \pm 20$  g. Animals (rats) were divided to five groups that each group includes 20 animals including controls and experimental (30, 60, 120) groups. Groups were under examination for about 20 days. At the end of the examination, blood samples were collected and the steroid, progesterone and prolactin hormones levels were assayed using RIA method.

**Results & Conclusion:** All the results were evaluated using T-test and ANOVA. The study showed that the utilization of Razianeh (Foeniculum) has significant effects on increasing both estrogen and prolactin hormones and decreasing effects of progesterone in experimental rats estrogen and prolactin levels. According to current study Razianeh (Foeniculum) can definitely be used in obstetrics as an herbal drug.

**Keywords:** Razianeh (Foeniculum), Progesterone, Estrogen, Prolactin, Female Rats.



**Comparative efficacy of florfenicol 10% and doxycycline 10% on performance of broiler flocks involved with colibacillosis**

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**Objectives:** The purpose of the present study was to assess the efficacy of florfenicol 10% and doxycycline 10% to reduce morbidity and mortality caused by colibacillosis in broiler chickens and to enhance performance of these flocks.

**Materials & Methods:** After confirmation of colibacillosis incidence in a farm of 50,000 broiler chickens at 36 days of age, and performing drug susceptibility test against above mentioned antibiotics, florfenicol 10% and doxycycline 10% were administered (with standard concentrations) in drinking water of the birds in rooms 1, 2 and 3, 4 respectively from 36-40 days of age (for 5 days). 300 Birds in room 5 served as control and only received pure drinking water. At 36, 43 and 50 days of age, Mean Body Weight (MBW) for each room was calculated. Also, feed intake (FI) and feed conversion ratio (FCR) were measured for all rooms and comparison of these data was implemented.

**Results & Conclusion:** At 43 days of age, MBW of doxycycline treated groups were significantly higher than control ( $p \leq 0.05$ ), but no significant differences between the two treatment groups were observed in this regard. While no significant difference was observed between florfenicol and control groups, the highest MBW at the age of 50 days was seen in the doxycycline treated group showing significant differences with the control group ( $p \leq 0.05$ ). Treatment of the birds with these two drugs also decreased mortality rate compared to the control. Finally, it was concluded that, because of broader spectrum of doxycycline, this drug has been able to overcome complicating infections, normally occurs with colibacillosis, thus improving performance of broilers compared to control or florfenicol treated groups. Our findings will help veterinarians choose and prescribe the most efficacious antimicrobial when treating colibacillosis.

**Keywords:** Antibiotic efficacy, doxycycline, florfenicol, broilers.

**Study on Sumac (*Rhus Coriaria* L.) Essential Oil Composition and Antimicrobial Effect against *Salmonella Typhimurium***

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**Objectives:** People ever increasing interest to use natural preservative led to boost in researches about natural products like plant essential oils. Sumac (*Rhus coriaria* L.) is a plant that is used traditionally as a flavour in Iran. In this study Sumac essential oil was evaluated.

**Materials & Methods:** In this study essential oil was extracted and analyzed using gas chromatography. Finally, antimicrobial effect of Sumac essential oil against *Salmonella typhimurium*, that is an important pathogen in food born disease, was evaluated. For this purpose, after essential oil extraction and analyzing by gas chromatography, antimicrobial effect of essential oil was evaluated by measuring turbidity as a result of bacterial growth at a broth media by Bioscreen C at 35 °C.

**Results & Conclusion:** Results showed that the most important fraction of essential oil that may cause antimicrobial effect is Caryophyllen. Results showed that this essential oil has a bacteriostatic effect at low concentration (30 PPM) and by increasing the concentration, antimicrobial effect of essential oil increase. So in 1000 PPM concentration of Sumac essential oil bacteriocidal effect was observed. It can be concluded that Sumac essential oil by its antimicrobial fractions can use to control growth of *Salmonella typhimurium*.

**Keywords:** Sumac, Antimicrobial effect, *Salmonella typhimurium*, *Rhus coriaria*, Gas chromatography.



### Histopathological and stereological studies of Soybean Hydroalcoholic extract effects on rat ovary

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**Objectives:** Soybean is a one-year plant and a member of Leguminosae family and Glycine Genus max. Soybean is known as a rich resource of phytoestrogens. These compounds have antioxidant, anti cancerous, antitumor and estrogenic effects. The investigations have showed that the societies whose diets include phytoestrogens have a lower risk to catch many of the diseases (western disease). The phytoestrogen's biological activities in animals were established in various studies. This research was performed to evaluate the efficacy of hydro alcoholic extract of soybean on ovarian tissue from histopathologic and stereologic aspects.

**Materials & Methods:** 40 adult Sprague-Dawley female rats with age range about 10 weeks were prepared from animal laboratory of Shiraz University of medical science and randomly divided into five groups including control, sham and experiments 1, 2 and 3. The animals of experimental groups received soybean hydro alcoholic extract at doses of 30, 60, and 120 mg/kg for 25 days respectively per Os. The sham group received distilled water in the same period. After anesthetizing with ketamin and xylasin, right ovaries were dissected and weighted, followed by processing of tissues based on histological and stereological studies.

**Results & Conclusion:** Administration of soybean extract had not significant changes in percentage of preantral, graafian follicles, corpus luteum, and ovarian volume in the experimental and sham groups regarding to the control group. Ovary weight in the experimental group 1 increased significantly. Percentage of antral follicle in the experimental 3 elevated significantly. Atretic follicle in all experimental groups reduced significantly ( $p < 0.05$ ). There was not seen any desirable effect on ovary in histopathological studies. Although, it was expected to see disorders in oogenesis in case of treatment with additional estrogens, it seems that the adopted dose of soybean in his study had not any harmful effects on rat ovary. Besides decrease in atretic follicle percentage and increase in antral follicle percentage are positive effects in this phenomenon. Given the benefits of soya on most organs of the body, it seems that the use of it in balanced doses has no damage and harmful effect on fertility process.

**Keywords:** Soybean, ovary, stereology, histopathology, rat.

### Evaluation of Lemon-Glycerin oil effect on wound healing in experimental burns

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**Objectives:** Wound healing includes a complex of biological events that immediately starts after induced injury. A burn injury is defined as losses caused by heat, chemical agents, electricity, and radioactive agents in different tissues. Healing of burns is similar to healing of other type of wound. Different drugs, plant extracts and compounds have been described for healing of cuts, burns, and wounds that accelerate the healing process without serious side effects. Therefore, the present study was aimed to assess topical Lemon-Glycerin oil effects in burn wounds and investigate healing process by macroscopic evaluation.

**Materials & Methods:** In this study, male Wister rats ( $n=20$ ) were used and randomly divided into experimental and control group. Under sterile conditions, the right side of each rat was shaved. Animals were anesthetized with 20 mg/kg of ketamin and 2 mg/kg of Xylazin. Burn wounds were created using a coin heated 100°C posting over for 10 seconds in order to make a second degree burning. After 24 h, wound locations were cleansed using normal saline and dressed with Lemon-Glycerin oil (50% Glycerin-50% Lemon) only in experimental group. Burn wounds were evaluated according to the available standards.

**Results & Conclusion:** A considerable difference in wound healing between control and treated groups was observed from the 9th day. In control group, a high quality of crust around the wounds margins, hyperemia, edema and lower wound contraction were observed. 14 days after induced burn, treated wound had better clinical criterions including no exudate, edema and hyperemia in wound area and epithelialization occurred completely. After 21 days, small areas of granulation tissue was present in central part of control wounds. Lemon-Glycerin oil can be applied as a relatively effective factor in burn wound healing. This oil provides suitable conditions for burn wound healing and can be used to keep burn wounds clean and transparent.

**Keywords:** Wound healing, burn wound, Lemon-Glycerin oil, rat.



### Antimicrobial susceptibility of Salmonella isolates from broiler chicken farms near Ghaemshahr, Mazandaran

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**Objectives:** Infection with bacteria of the genus *Salmonella* are responsible for a variety of acute and chronic diseases in poultry. Contaminated poultry products are among the leading animal sources of *Salmonella* that enter the human food supply. *Salmonella* infection is prevalent in Iranian poultry farms. The presence of antimicrobial-resistant *Salmonella* isolates is a frequent observation in poultry flocks. This study was conducted to determine the antimicrobial susceptibility patterns of *Salmonella* isolates recently recovered from poultry flocks in the vicinity of Ghaemshahr city in Mazandaran province.

**Materials & Methods:** The susceptibility of 30 *Salmonella* isolates obtained from 20 broiler flocks in the vicinity of Ghaemshahr city in Mazandaran province determined using a panel of 30 antimicrobial agents by the standard agar disc diffusion procedure (Kirby-Bauer method).

**Results & Conclusion:** All *Salmonella* isolates were found susceptible or intermediately susceptible to ampicillin, amikacin, ceftazidime, ceftriaxone, gentamicin, imipenem, levofloxacin, norfloxacin, and Fosbac®. The percentages of isolates that were resistant to the other drugs were as follows: 3.3% to each of cephalothin and ciprofloxacin, 6.7% to danofloxacin, 10% to cefixime, 36.7% to piperacillin, 43.3% to amoxi-clav, 46.7% to enrofloxacin, 50% to chloramphenicol, 56.7% to florfenicol, 60% to kanamycin, 63.3% to each of colistin and neomycin, 80% to flumequine, 83.3% to carbenicillin, 90% to trimethoprim + sulfa, 93.3% to each of furazolidone, streptomycin, and tetracycline, 96.7% to each of lincospectin and nalidixic acid. The result of this study showed that the resistance of avian *Salmonella* isolates to the most of the antibacterial agents common in poultry industry is widespread and of concern to poultry as well as public health.

**Keywords:** *Salmonella*, Antimicrobial susceptibility, Broiler, Ghaemshahr, Iran.

### Study on effect of combination of Rhubarb and clove extract on wound healing Process in a round wound type.

Amin Dabily

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**Objectives:** Variety of synthetic drugs have been introduced and used to promote healing of wound. Unfortunately, most of these drugs have numerous defects, limitations and side effects. Many reports about antimicrobial and anti-inflammatory effects of clove extraction and astringent properties and protective mucous layering effect of Rhubarb extract are presented. This study investigated the effect of topical herbal extract of clove and Rhubarb on healing and speed of healing on round wound in rats.

**Materials & Methods:** In this study 30 male rats were used. Mice were randomly divided into three groups: false, control and treatment groups. Biopsy punch aided wound were created with 2 cm diameter and deep dermis thickness on Para vertebral area of midline under local anesthesia using lidocaine. False control group received no treatment. Control group received cold topical cream twice a day from start until complete wound closure and treatment group received clove extract gel and Rhubarb in the same way. Review the effectiveness of the extracts was performed by evaluating healed region with help of video image analyzing software and pathological study.

**Results & Conclusion:** Average percentage of healing on round wound was changed in false and control groups in days 3, 6, 9, 12 and 15 from the 12.48% 31.64%, 52.39% 77.48% and 100% to 14.53% 36.31% 57.32%, 89.74 and 100% respectively using extract of Rhubarb and clove demonstrating significant difference between control and treatment groups ( $P < 0.05$ ). In histological studies, control and treatment groups suggested a rather different qualitative process on speed of healing process and migrating cell process and cleaning process of area according to the order of samples taking. Effect of clove extract on reducing inflammation and time of tissue repairing was statistically significant compared with false control group and control group. Findings showed that Rhubarb extraction contains glycoside and tannin and decreased scarring region and clove extracts due to phenolic substances have antibacterial properties and regulate inflammation process. Synergistic effects of these compounds decreased inflammation phase due to reduction of Neutrophils reducing wound areas and duration of inflammation improving healing process.

**Keywords:** Wound healing, Round wound, Clove and rhubarb extracts.



### Comparative study on antibiotic residue in raw milk of Qom farms during various seasons

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**Objectives:** Milk is one the most compatible nutrients of human food instead of high potential of contamination. Nowadays, various antibiotics are used in veterinary practice especially to treat mastitis, but the farmers deliver milk to the milk processing milk without paying attention to the withdrawal time. The residues in milk and transferring it to the human body affect human body in a harmful way.

**Materials & Methods:** The milk transferred to Labaniran factory in Qom during all seasons were checked for antibiotic residues. (80, 72, 115 and 112 samples were taken in spring, summer, autumn and winter respectively.) To check the antibiotic residue, Twinsensor kit (manufactured by Unisensor) was used, which is capable to detect 2 antibiotic groups including Betalactam (amoxicillin, benzyl penicillin, ceftiofur, cloxacillin and so on) and tetracycline (chlortetracycline, doxycycline, and oxytetracycline).

**Results & Conclusion:** In the spring, 16 tetracycline (20 %) and 11 Beta lactam(13.75 %) of total 27 cases (33.75%), 3 tetracycline (4.1 %) and 5 Beta lactam(6.94 %) of 9 cases in the summer, 21 tetracycline (18.3%) and 16 Beta lactam (13.9 %) of total 35 cases in the autumn and finally 26 tetracycline (23.2%)and 14 Beta lactam (12.5 %) of total 40 cases in the winter were found positive in terms of antibiotic residue. According to the results, using antibiotic detection kits may be useful for detecting antibiotic in the milk. Also it was indicated that the antibiotic residue in raw milk hit the highest level in the winter potentially due to the high mastitis rate in the cold seasons and to high uptake of antibiotics in the farm animals. Since it is not possible to remove the antibiotic residue in the milk via pasteurization, it is suggested to prescribe the antibiotics in the farms exclusively by veterinarians and observe the withdrawal time.

**Keywords:** Antibiotics remaining, betalactam, tetracycline, Qom farm, raw milk, twin sensor kit.

### Effect of xylazine on tear production measured by Schirmer tear test in normal cats

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**Objectives:** This study aimed to evaluate the effect of xylazine on Schirmer tear test results in clinically normal cats.

**Materials & Methods:** Eight healthy cross-breed cats were selected for the study. They were sedated with xylazine (2 mg/kg). All cats had Schirmer tear test (STT) readings taken prior to sedation and at 15 and 25 min post sedation.

**Results & Conclusion:** Sedation with xylazine in cats with normal pre-sedation STT 1 values caused a statistically significant decrease in mean values of tear production. The post-treatment mean  $\pm$  SEM values were  $2.18 \pm 0.97$  ( $P < 0.001$ ) and  $2.62 \pm 1.17$  ( $P = 0.001$ ) at 15 and 25 min respectively. Comparison between T15 and T25 ( $P = 0.56$ ) revealed no significant differences. These observations indicate that xylazine significantly reduced tear production in clinically normal cats. In cats, clinicians should measure STT values prior to utilizing xylazine as sedative in order to accurately assess the results. Moreover, sterile ocular lubricant or tear replacement should be used as a corneal protectant during sedation with this drug.

**Keywords:** Xylazine, schirmer tear test, cat.





### Clinical investigation of general anesthesia induced by Ketamin-Tramadol combination in pigeon

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**Objectives:** Ketamine is one of the Fencyclidin derivations and belongs to family called "dissociative anesthesia composition" and choice for establishing anesthesia in birds. Tramadol is from opioids family and a narcotic agent that used by veterinarians for sedation of chronic pains such as chronic arthritis in old dogs. This study was conducted on 32 pigeons with average weight of 310 g and aging 1-3 years old. The pigeon adaptation was achieved two weeks before initiation of study.

**Materials & Methods:** The birds raised in same ambient due to adaptation and minimizing of all negative conditions of the new environment. The birds were randomly divided in two groups. Group I only given Ketamine HCL (30 mg/kg IM) by intra muscular route in pectoral muscle and group II were administered by Ketamine-Tramadol (10 mg/kg + 0.2 mg/kg). The results indicated that long-term anesthesia and muscle relaxation in group II that were given combination of Ketamine-Tramadol were higher in comparison with group I, either in terms of muscle disharmony and the time that is necessary for start of anesthesia.

**Results & Conclusion:** Statistical findings indicated that above mentioned composition established fast and long-term anesthesia ( $14.22 \pm 6.36$  min) in comparison with group II ( $8.13 \pm 1.41$  min). So this combination could be employed with least side effects in birds

**Keywords:** Ketamin, Tramadol, Pigeon.

### Antifungal and Morphologic Changes Caused by Aniseed Essence in Zygomycetes Fungi

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**Objectives:** Mucormycosis is an acute and opportunistic fungal infection caused by mucoraceae. These fungi have a worldwide distribution. Major predisposing factors in mucormycosis are hyperglycemia, metabolic acidosis, overuse of corticosteroids and leukemia. Aniseed is a weed like one year plant, in traditional medicine is believed that, essence of aniseed has antibacterial, antifungal and antiparasitic effects.

**Materials & Methods:** In this study, for evaluating morphologic changes, combination of media and essence, in 62.5, 125, 250, 500 and 1000 ppm dilutions in plate and for determination of MIC, 96 wells micro plate by Broth microdilution method were used. Aniseed essence was derived by Clevenger and *Mucor himalaya* (PTCC 5292) and *Rhizopus oryzae* (PTCC 5176) were purchased from Iran scientific and industrial researches institute

**Results & Conclusion:** In evaluation of morphologic changes, it was detected that *Mucor himalaya* with dilutions of 62.5, 125 and 250 ppm of aniseed essence in first day showed little growth, with a yellowish color colony and without sporulation. But, in the second day each of 3 dilutions showed complete growth, gray colony and sporulation. *Mucor himalaya* in dilutions of 500 and 1000 ppm of aniseed essence during 7 days of study showed no growth. *Rhizopus oryzae* with dilutions of 62.5 and 125 ppm of aniseed in first day showed little growth with a complete colony but without sporulation, in second day both of dilutions showed complete growth and in third day started sporulation. These fungi with dilutions of 250 ppm of aniseed in third day showed a white complete colony, and from fourth day showed sporulation. Media contained 500 and 1000 ppm of aniseed essence during 7 days showed no growth. In conclusion, present study showed that aniseed essence can be an effective antifungal agent against zygomycetes.

**Keywords:** Aniseed essence, mucormycosis, *Mucor himalaya*, *Rhizopus oryzae*.



### Antifungal Effects of *Zataria multiflora*

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**Objectives:** Thyme is a weed-like plant and a member of Latiatae (mint) family with many thin, hard and branched stems and is one of the well known medicinal plants in traditional medicine. Aerial parts of this plant, the parts that grow above the ground and its dried leaves are used as medicine. Essence of this plant contains chemical compounds such as Thymol and Carvacrol. Thymes have different species which *Zataria multiflora* is one of them.

**Materials & Methods:** In this study, for investigating antifungal and morphological changes a mixture of media and the essence in 62.5, 125, 250, 500 and 1000 ppm dilutions were used and for determination of MIC, Broth micro dilution method was used. Thyme essence numbered 88/002/EOF27 was purchased from Zarband Company and *Mucor hiemalis* (PTCC 5292) and *Rhizopus oryzae* (PTCC 5176) were obtained from institute of scientific and industrial researches.

**Results & Conclusion:** *Mucor himalaya* in dilutions of 500 and 1000 ppm of aniseed essence showed no growth during 7 days of study. *Rhizopus oryzae* with dilutions of 500 ppm of thyme essence showed no growth, little growth and complete white colony in days 1, 2 and 3 and from fourth day started sporulation. *Rhizopus oryzae* in the media containing 1000 ppm of essence did not show any growth during 7 days of study. MFC results showed that MFC of *Mucor himalaya* is 500 ppm and for *Rhizopus oryzae* is 1000 ppm. In conclusion present study showed that thyme essence can be used as an effective antifungal agent but further in vivo studies are suggested.

**Keywords:** *Zataria multiflora*, *Mucor himalaya*, *Rhizopus oryzae*, antifungal.

### Effects of simultaneous application of kanamycin and Furanace on bacterial infection control in trout through feeding and bathing treatment

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**Objectives:** kanamycine sulfate is an amino glycoside compound wherein amino sucroses are attached to each other through glycoside bonds. This antibiotic interacts in protein formation within sensitive organisms showing its bactericidal effects as an antimicrobial substance. In addition, furanace is not only capable of containing bacterial infection but is also an effective agent for controlling fungal contamination particularly in bathing treatment of bacterial infection among freshwater fish species. The study aimed at investigating the effects of simultaneous application of the two drugs via feeding and long bathing treatments on the bacterial infection control in trout.

**Materials & Methods:** In a trout farming site affected by prolonged mortalities and rampant symptoms of disease, attempt was made to single out 10 pieces of fish suspected of being ill which were transferred to fish disease lab. Upon examining of the dissected tissues in the internal organs, two drugs namely as kanamaycin and furanace were administered to control the development of the disease in 50 mg/kg and 0.25 ppm doses respectively in the forms of food inclusion and bathing lasted for seven days in the pond.

**Results & Conclusion:** The result indicated that the simultaneous application of these two drugs had a considerable impact on the disease control resulting in the elimination of mortality, disease symptoms and lesions and the fish returned to normal feeding status.

**Keywords:** Trout, Antibiotic, Bacteria, Disease.



### Effects of combined application of Masoten and Levamesole Hydrochloride on external parasites of farmed fish

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**Objectives:** Masoten contains 80% of effective trichlorofon substance which is widely used as a disinfectant in removing the external parasites of farmed fishes. Although over usage may result in limits Plankton development and lowered dissolved oxygen, the suitable dosage of the drug can prove effective in controlling the fish parasites without any destructive environmental impacts. Levamesole hydro chloride is commercially known as levasol which is utilized for elimination of internal parasites and consolidation of the immune system through stimulating the macro flagellate functioning as a drastic remover of fish external parasite. The present research intended to shed more lights in this matter.

**Materials & Methods:** 200 pieces of ornamental golden fish were selected as experimental fish affecting by monogenic parasites, lernae and protozoa Trichodina, Ich and chilodonella. The infected fishes were evenly distributed in four aquaria (1×1×0.5m) (50 pieces in each aquarium) in which the pH and dissolved oxygen level were similar to outdoor ponds. The aquarium No 1 was added with 0.25 mg/l Masoten, whereas aquarium No 2 received 10 mg/L levasol with the third aquarium which was subjected to combined administration of masoten + Levasol (10 mg/l + 0).

**Results & Conclusion:** The results obtained in this study showed that each of the drugs used alone was somehow effective in the control or elimination of the parasites. Nevertheless, the combined application of these two drugs was found far more effective in wiping out the external parasites of both Metazoa and protozoa. Moreover, the combined usage of the drugs had also resulted in better control of secondary infections that caused fin erosion among fish.

**Keywords:** Masoten, Levamisole, fish, parasites.

### Prevalence of Antibiotic Residues in Pasteurized Milk in Tabriz.

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**Objectives:** Use of antibiotic that might result in deposition of residues in meat, milk and eggs must not be permitted in food intended for human consumption. Concern over antibiotic residues in food of animal origin occurs in two parts; producing potential threat to direct toxicity in human and low levels of antibiotic exposure would result in alteration of microflora causing disease and the possible development of resistant strains which terminates to failure of antibiotic therapy in clinical situations. Also, the presence of antibiotic residue in milk can cause problems for producers because these residues may inhibit of dairy production.

**Materials & Methods:** Antibiotic residues were studied between November 2010 and March 2011 in four brands of pasteurized milk (A, B, C and D) marketed in Tabriz, Iran. For this purpose; a total of 200 pasteurized milk samples, were collected and analyzed using Copan milk test (CHR. Hansen, Denmark).

**Results & Conclusion:** 18(9%) of samples were found positive for antibiotic residues in pasteurized milk in Tabriz. Antibiotic residues in brand D were higher than the other brands. The results showed that the antibiotic residues in milk are risk factors to public health producing disorders in dairy products and control programs to prevent of antibiotic residues must be adopted.

**Keywords:** Antibiotic, Residues, Pasteurized, Milk, Tabriz.



### Protective effects of *Salvia verticillata* during Serum/Glucose Deprivation in PC12 cells

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**Objectives:** The serum/glucose deprivation (SGD) induce cell injury in cultured rat Pheochromocytoma (PC12) cell line represents a useful in vitro model for studying the induction of cell injury following brain ischemia and other neurodegenerative disorders. *Salvia verticillata* (purple rain or lilac sage), a Eurasian species used locally in folk medicine and as a garden ornamental, has been reported as an antioxidant and due to its polyphenols, volatile oils and diterpenoids contain. To elucidate the neuroprotective in vitro effects of *Salvia verticillata*, alcoholic/aqueous extract of this plant effect on viability of cultured PC12 cells under SGD condition was evaluated.

**Materials & Methods:** The protective effects of alcoholic/aqueous (70)/30) extract of *Salvia verticillata* on rat PC12 cells during the SGD model in a DMEM medium was assessed. PC12 cells were grown in DMEM media, supplemented with 10 % FCS, and 1% antibiotic, containing 100 IU/ml penicillin and 100 µg/ml streptomycin. After seeding overnight, cells were deprived from serum/glucose for 6 to 12 hrs. In treatment groups, cells were pre-incubated with alcoholic/aqueous extract for 2 hrs before inducing SGD, in which the same treatments were applied. Two way ANOVA followed by Tuckey-krammer was employed.

**Results & Conclusion:** Addition of the alcohol free *Salvia verticillata* extract increased viability of the cells in a concentration-dependent manner as revealed by an absorbance increase percentage in MTT assay from  $18.78 \pm 3.95$  in SGD group to  $13.19 \pm 0.52$ ,  $17 \pm 0.63$ ,  $23.43 \pm 0.42$ ,  $28.42 \pm 2.89$ ,  $66.06 \pm 3.32$  and  $97.62 \pm 8.41$  respectively (n=8). These findings, in case shown to be true in vivo studies as well, can raise new hope in treatment of different oxidative stress mediated diseases.

**Keywords:** *Salvia verticillata*, antioxidant, rat, PC12, Oxidative stress.

### Effect of oral atenolol on intraocular pressure in healthy dogs

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**Objectives:** This study evaluated the effect of oral administration of Atenolol (beta-blocker) on intraocular pressure (IOP) in healthy dogs.

**Materials & Methods:** Five adult male, mixed breed dogs were used in this study. In oral administration, 1 mg/kg Atenolol every 12 hours have given for 14 days. Intraocular pressure was measured just before starting first administration. IOP also measured in the days 1, 3, 5, 7 and 14 after oral administration. For IOP measurements corneal anesthesia by Tetracaine % 0.5 were done in advance.

**Results & Conclusion:** Based on the results of this study, in oral administration of atenolol there was no significant change was seen on days 1, 3, 5, 7 and 14 after administration compared with zero day ( $P < 0/01$ ). Although, short-term oral administration of Atenolol 1mg/kg every 12 hours, exerted no significant reductions in IOP rates, but it is possible to achieve better results in higher doses or long-term treatment. Some other variable factors such as dosage, species, type and method of drug administration can change the results of this beta blocker administration effects that needed additional study.

**Keywords:** Intraocular pressure, atenolol, normal dogs.



### Tilmicosin Toxicity in goats

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**Objectives:** Tilmicosin is a semisynthetic derivative of tylosin that intended for use in the treatment of bacterial infection in livestock. It has developed as a long acting formulation for use bovine and ovine respiratory disease. Tilmicosin approved for single dose SC treatment of pneumonia associated with *Mannheimia haemolytica* and mastitis in sheep. Nevertheless tilmicosin is potential toxic to the cardiovascular system, which varies to some extent with species. Serious toxicity was reported with administering doses as low as 5 mg/kg BW, IV, in cattle and 10 mg/kg BW, IM, in swine and only about 30mg/kg, SC, in goats.

**Materials & Methods:** In a 200 heads goat flock, 25 goats with pneumonia were received tilmicosin 15 mg/kg SC and 2-3 hours after drug administration, toxicity symptoms including palpitation 120 beats /minute, decrease in cardiac contractility, depression, reluctance to move and increase in breath sounds and respiratory rate were appeared. Some of the goats were recumbent. Goats were 1-3 years old. Considering the clinical sign and history, tilmicosin toxicity was diagnosed and the goats were treated with fluid therapy and calcium borogluconate.

**Results & Conclusion:** Immediately after the treatment all of the goats recovered and their heart rate, cardiac contractility, and respiratory rate returned to normal range. Results of this study showed that use tilmicosin, even at a dose of 15 mg/kg is extremely toxic and can be fatal and not recommended for use in goats. While using tilmicosin at the same dose was proven safe and effective in sheep with respiratory infections. The toxicity of tilmicosin appears to affect the cardiovascular system and clinical evidences of this toxicity is generally a manifestation of the positive chronotropic and negative inotropic cardiovascular effects. The mechanism of tilmicosin toxicity to the heart has not been clearly suggested in the literature although it may be mediated through intracellular calcium. A rapid depletion of intracellular calcium through interference with sarcolemal calcium channels, or some others mechanism, could result in negative inotropic effects. Our study showed that calcium can be used as antidote to eliminate the toxic effects of tilmicosin.

**Keywords:** Tilmicosin Toxicity Goats.

### In vitro antibiotic susceptibility of Coagulase Negative Staphylococci (CNS) Isolated from bovine subclinical mastitis in Mashhad

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**Objectives:** Staphylococci are present as major mastitis pathogens in the dairy industry worldwide. Coagulase-negative staphylococci (CNS) are increasing in importance as causes of bovine IMI throughout the world in recent years. The purpose of this study was to determine the in vitro antibiotic susceptibility of CNS isolated from bovine subclinical mastitis in Mashhad to several antimicrobial agents used in the control of this disease.

**Materials & Methods:** A total of 250 Milk samples were taken aseptically from all quarters bovine infected udders of some dairy industry farms of Mashhad. The milk samples were plated out on blood agar plates with 5% defibrinated sheep blood and incubated at 37°C for 24-48 h. The antibiotic susceptibility tests for CNS isolates from mastitis milk samples were carried out using disk diffusion as described by Kirby-Bauer using 10 different antibiotic disks.

**Results & Conclusion:** A total of 47 CNS strain were isolated from mastitic milk samples. CNS strains were identified as 12 (25.53%) strains of *S. hyicus*, 10 (21.27%) strains of *S. chromogenes*, 11 (23.4%) strains of *S. epidermidis*, 8 (17.02%) strains of *S. haemolyticus*, 2 (4.25%) strains of *S. simulans* and 4 (8.51%) strains of *S. xylosus*. The antibiotic susceptibility test results showed that all CNS strains were susceptible to gentamycin and cephalotin and resistant to penicillin (100%) and oxacillin (78%). The high resistance to penicillin found in this study emphasizes the importance of the identification of coagulase negative staphylococcus when mastitis is present.

**Keywords:** Coagulase negative staphylococcus, antibiotic susceptibility, mastitis.



### Efficacy of CIA vaccine in broiler breeder flock based on variation and persistency in anti-CAV antibodies titers

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**Objectives:** The disease associated with CAV infection can be prevented by immunization of breeding flocks with live virus vaccines. Serological data has suggested that CIAV appeared to be ubiquitous in all major chicken production countries of the world. The objective of the present work was to perform the efficacy of vaccine based on induction of persistent antibodies in breeder and their progenies compared to unvaccinated breeder flock.

**Materials & Methods:** One attenuated live virus vaccine (PV4, Intervet Co.) was administrated to Ross 308 broiler breeder flocks at 6-week old via Sc rout. A total of 352 serum samples were collected from vaccinated and unvaccinated flock from 6 to 33 week old (5, 12, 16, 20 and 28 weeks after vaccination) and 2 times in their progeny flocks (20 and 28 weeks after vaccination). Sera were analyzed by indirect ELISA (Synbiotics Corporation, ProFlok KPL). Coefficient of Variance (%CV), arithmetic and geometric mean titers (AMT & GMT) were compared between 2 groups statistically by t-test.

**Results & Conclusion:** The ELISA results showed that in unvaccinated flocks anti-CAV antibodies were present, although some breeder hens were anti-CAV antibody negative and were susceptible to the clinical disease and potentially can transmit the virus vertically. All breeders from vaccinated flock were positive. Due to natural infection of CIV in vaccinated flock, the GMT and AMT were higher than vaccinated flock significantly ( $P < 0.05$ ). The CV% in vaccinated group was lower than unvaccinated group. Also CV% in progeny of vaccinated group was lower than progeny of unvaccinated group. Vaccination could be an efficient rout for eliminating susceptible birds, decreasing variation in anti-CAV antibodies titers and induction persistent antibody titer. However more experiments need to be carried out to define if vaccination really is desirable.

**Keywords:** Chicken anemia virus, CIA, CIAV, Live vaccine, Broiler breeder flock, Ross 308.

### Prevalence of antibiotic resistance in *Staphylococcus* spp. isolated from cheese and raw milk in Mashhad

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**Objectives:** *Staphylococcus* (*S.*) *aureus* is worldwide most important pathogen in food poisoning and causes gastrointestinal symptoms like nausea, emesis, abdominal cramps and diarrhea in humans. In this article the results of a study for the antibacterial efficacy of twelve antibiotics, using an in vitro method, against 80 staphylococcal isolates from cheese and raw milk were reported.

**Materials & Methods:** A total of 80 *Staphylococci* including 45 *Staphylococcus aureus* and 35 coagulase negative *Staphylococci* (CNS) isolated from cheese and raw milk in Mashhad were investigated for in vitro susceptibility to several antimicrobial agents using agar disk diffusion method.

**Results & Conclusion:** Out of 45 isolates of *S. aureus* resistance was detected in 40 (88.88%); 32 (71.11%), 36 (80%), 36 (80%), 13 (28.89%), 38 (84.44%), isolates for penicillin, cephalotin, tetracycline, ampicillin, cefixime and methicillin respectively. No resistance was detected for gentamycin and vancomycin. Out of 35 CNS isolates resistance was detected in 33 (94.28%), 28 (80%), 20 (57.14%), 19 (54.28%), 30 (85.71%) and 29 (82.85%) isolates for penicillin, cephalotin, cefixime, tetracycline, ampicillin and methicillin respectively, whereas no resistance was detected for gentamycin and vancomycin.

**Keywords:** *Staphylococcus aureus*, coagulase negative *Staphylococci*, antibiotic susceptibility testing.



**Study of antibacterial activity of hollyhock hydro alcohol extract (alcea) and garlic (*Allium sativum*) against *E.Coli* PTCC1330 and *Pseudomonas aeruginosa* PTCC1077**

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**Objectives:** the use of herbal medicines has progressed day after day due to side effects of chemical medicines and developing resistance to chemical medicines.

**Materials & Methods:** Hollyhock and garlic, two herbal medicines of Shiraz areas gathered and dried under shades and their Hydro alcoholic extract provided and were examined whether they have antibiotic property or not. In-vitro antibacterial effect assessment was performed using diffusion in medium method of Moller Hilton agar by agar disk diffusion.

**Results & Conclusion:** Blight areola diameter of hollyhock extract and garlic against *E.Coli* PTCC1330 are as follows: its 6 to 7mm for hollyhock extract and 9 to 10 mm for garlic, and about hollyhock extract and garlic function against *Pseudomonas aeruginosa* PTCC1077 are 5 to 6 mm for hollyhock extract and 2 to 3mm for garlic extract respectively. According to applied densities in comparison with antibiotic containing disks, it was concluded that, for *E.Coli* both hollyhock and garlic had medium antibacterial effects, and for *Pseudomonas aeruginosa* hollyhock is more effective than garlic, penicillin, and tetracycline.

**Keywords:** Antibacterial activity, herbal medicines, hydro alcohol extract.

**Effects of *Salvia officinalis* extract on serum biochemical parameters in rabbit**

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**Objectives:** *Salvia officinalis* is among the plants to which antidiabetic properties have been attributed by popular medicine and its extracts showed to possess hypoglycemic effects in normal and diabetic animals. The aim of present study was to evaluate the effects of the *Salvia officinalis* extract on serum biochemical parameters in rabbit.

**Materials & Methods:** 20 male White New Zealand rabbit were divided into two groups (10 rabbit per each). Groups include: 1) Control (saline normal O.P), 2) 5% *Salvia officinalis* extract O.P. blood samples were taken by heparinized syringe from marginal ear vein, weekly until the 6th week. Serum glucose, cholesterol, LDL, LDH, ALT and AST were measured.

**Results & Conclusion:** Following the *Salvia officinalis* extract administration, no significant effect on fasting blood glucose were observed. Plasma AST and ALT activities were determined in order to evaluate the safety of *S.officinalis* extract. Although a significant increase in plasma AST enzyme activity was observed at the fourth week of administration. *S.officinalis* treatment reduced slightly plasma total cholesterol levels during treatment phase, achieving a significant reduction two weeks after the end of the treatment. A beneficial effect on lipoprotein levels, with a reduction of LDL and an increase of HDL levels were observed. In conclusion, a six week treatment with *Salvia officinalis* extract was effective in the improvement of lipid profile which in the long term may be responsible for the general health improving properties attributed to *S.officinalis*. Our results support the popular believe that *S. officinalis* is beneficial and although not demonstrating effects on glucose regulation. Results show that *S.officinalis* is safe but it needs more studies to evaluate other aspects of its effects.

**Keywords:** *Salvia officinalis*, serum biochemical parameters, rabbit.



### Evaluation of echocardiography followed co-administration of lasalocid and florfenicol in broiler chickens

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**Objectives:** Lasalocid and chloramphenicol are ionophoric occidiostate and broad-spectrum antibiotic respectively. There is a report that shows using of chloramphenicol with lasalocid lead to paralysis and co-administration of these drugs can have negative effects on muscle histopathologic feature in chickens. In considering to the similar structure of chloramphenicol and florfenicol, seems simultaneous administration of lasalocid and chloramphenicol may be have these negative effects on muscle of heart. Lack of any report about interaction or no interaction between these drugs challenged us to study echocardiography followed with usage of these two drugs together.

**Materials & Methods:** 180 day-old broiler chicks were reared in 4 groups with 3 replicates. In group A chickens were received only florfenicol. Group B includes those chickens that received only lasalocid, and chickens in group C received florfenicol and lasalocid. Group D as negative control not received any of these drugs. In this trial, florfenicol use 5 continues days from 21 to 25 days old and lasalocid fed from 3 to 35 days old. All chickens were evaluated for echocardiographic indices comprise of left ventricular dimension in systole (LVDs), Stroke Volume (SV) and fractional shortening (FS) by ultrasound with transducer of 10MHZ.

**Results & Conclusion:** Results showed the echocardiographic indices comprised of LVDd, LVDs, SV and FS were changed followed simultaneous administration of florfenicol and lasalocid in broilers chickens. Statistical analysis of data showed, there was a significant differences between mean of LVDd, LVDs, SV and FS in chickens fed normal diet and chickens consumed lasalocid with florfenicol for 5 consecutive days. Echocardiographic data shows, co-administration of florfenicol and lasalocid in broilers chickens can has negative effect on muscle function of heart. One report indicates chloramphenicol can interact with lasalocid in chickens with signs of muscular degeneration and muscular necrosis in legs. Until now, there has been no report about interaction of lasalocid with florfenicol and this is the first report of interaction of florfenicol and lasalocid in broilers chickens.

**Keywords:** Echocardiography, Lasalocid, Florfenicol, Chicken.

### Effects of Ivermectin administration on serum biochemical parameters in sheep

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**Objectives:** Ivermectin are macrocyclic lactones derived from the bacterium *Streptomyces avermitilis*. Ivermectin kills parasites by interfering with nervous system and muscle function, in particular by enhancing inhibitory neurotransmission. The drug binds and activates glutamate-gated chloride channels (GluCl<sub>s</sub>). GluCl<sub>s</sub> are invertebrate-specific members of the Cys-loop family of ligand gated ion channels present in neurons and myocytes. Because of ivermectin wide usage in veterinary medicine, its effects and side effects must be addressed. The aim of present study was to evaluate the possible effects of ivermectin administration on serum biochemical parameters in sheep.

**Materials & Methods:** Fifteen adult male ram were randomly divided into three groups. Groups include: 1) (control) distilled water, 2) 0.5 ml per 25 kg of body ivermectin and 3) 1 ml per 25 kg body weight. The administration was done subcutaneously. The administrations repeated 7 days later. Blood samples were taken by heparinized syringe from jugular vein on days 0, 7 and 14 of treatment. Serum urea, creatinine, albumin, glucose, cholesterol, inorganic phosphate, calcium, Alkaline phosphatase (ALP), aspartate aminotransferases (AST) and alanine aminotransferases (ALT) concentrations were measured.

**Results & Conclusion:** Administration of ivermectin led to significant increase ( $P < 0.05$ ) in serum urea, creatinine, glucose and cholesterol concentrations while albumin was significantly reduced ( $P < 0.05$ ). Generally, activities of ALP, AST and ALT were significantly altered ( $P < 0.05$ ). These observations may be suggestive of deranged membrane structures and functions. Thus the administration of this drug may be exerting deleterious effects on tissues like both renal and hepatic functions. The elevated serum glucose level observed may have resulted from increased mobilization of glucose for metabolism or may be due to reduced glucose uptake into cells. The significant increase in serum ALP and AST activity of all the treatment groups is suggestive of a possible damage to tissue cell plasma membrane thus leading to leakage of membrane components into the extracellular fluid. The results obtained from this study suggested that the repeated administration of ivermectin may compromise the integrity of the kidney and the liver and thereby adversely affect their normal functions. Also in clinical aspects, attention to alterative effects of ivermectin on serum biochemical parameters is necessary.

**Keywords:** Ivermectin, serum biochemical parameters, sheep.





### Effects of *Teucrium polium* Essential oil on Pancreatic Function of Streptozotocin Diabetic Rats

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**Objectives:** *Teucrium polium* is a medicinal herb and used in Iranian folk medicine for treating many diseases such as abdominal pain, indigestion, common cold, diabetes and urogenital diseases. This plant has been reported to have hypolipidemic, hypoglycaemic, anti-nociceptive and anti-inflammatory effects. The reported medicinal applications and very few adverse effects of *T. polium* indicate the relatively safe nature of this medicinal herb. Our aim in the present study was to investigate the biochemical composition and effects of *T. polium* essential oil on blood glucose levels and some other biochemical parameters to demonstrate its possible therapeutic effects on diabetes.

**Materials & Methods:** Biochemical composition of *T. polium* essential oil has been evaluated by Gas chromatography/mass spectrophotometer. To determine the antidiabetic effects, the essential oil was administered orally to check its effects on the blood glucose levels of Streptozotocin (STZ)-induced diabetic rats. Blood glucose levels were estimated before and 2, 4, 6 and 8 hours after administration of the Essential oil.

**Results & Conclusion:** The chemical analysis of this essential oil shows the presence of 58 substances (90.48%) mainly including Bicyclodec-1-ene (11.73%), 1, 3-Cyclooctadiene (9.72%), Isoaromadendrene epoxide (4.78%), 2, 3, 3-Trimethyl-3-cyclopentene acetaldehyde (3.20%) and o-Menth-8-ene (2.44%), respectively. The essential oil of *T. Polium* significantly ( $p < 0.05$ ) induced hypoglycaemic effects in normal and diabetic rats ( $P > 0.05$ ). The biological activity of some above-mentioned components (flavonoids, estrols and volatile oils) as active components can explain the hypoglycemic or insulinotropic effects of this essential oil and future introduction of *T. polium* essential oil as an antidiabetic agent.

**Keywords:** *Teucrium polium*, hypoglycaemia, streptozotocin, diabetes.

### Crocin downregulates the expression of Toll-Like Receptors in spinal cords of Experimental Autoimmune Encephalitis mice as a model of Human Multiple sclerosis

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**Objectives:** Multiple sclerosis is a neurodegenerative disease of CNS in which, inflammation causes the myelin to disappear, ensuing disturbances in vision, speech, walking and memory. This overwhelming inflammatory pattern is accompanied by a progressive increase in free-radicals generation resulting to oxidative stress. Toll-like receptors have a critical role in innate immunity. TLR-mediated activation of innate immunity is involved not only in host defense against pathogens but also in immune disorders such as MS. Saffron extract or its active constituent, crocin, have been shown to pose potential therapeutic effects in different models of oxidative stress-induced neurodegenerative disorders.

**Materials & Methods:** Herein the potential effects of crocin (100mg/kg/day i.p.), as an herbal antioxidant on the mRNA expression different members of TLR family using real-time RT-PCR, following the induction of Experimental Autoimmune was evaluated. Encephalitis (EAE) is an animal model of Multiple Sclerosis. In this model, animals are introduced to the whole or parts of various proteins of the myelin sheet, which mounts the animal's immune system to attack on its own myelin.

**Results & Conclusion:** Although the expression of TLR-2, TLR-3 and TLR-4 were increased in EAE animals spinal cords, injecting crocin could significantly downregulate the TLR-2 and TLR-4 expression at day 7 after induction of EAE, resulting in alleviation of overall inflammatory responses.

**Keywords:** Crocin, Saffron, Multiple sclerosis, Toll-Like Receptor, Experimental Autoimmune Encephalitis.



### Effect of intracerebroventricular injection of propranolol and isoproterenol on food intake in broiler

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**Objectives:** The role played by adrenergic system in the central regulation of food intake, especially in mammals, has been studied. Findings have revealed that intracerebroventricular (ICV) injection of epinephrine increased food intake in rats. The role played by adrenergic receptors, especially  $\alpha$ -receptors and the subtypes has been the studied previously. There are few similar investigations in domestic fowl (*Gallus gallus domesticus*), particularly in broilers. In this study, the effects of ICV injection of isoproterenol (a  $\beta$ -adrenoceptor agonist, propranolol (a  $\beta$ -adrenoceptor blocker) was studied.

**Materials & Methods:** In first Experiment, isoproterenol was ICV injected at doses of 0, 20, 40 and 80  $\mu$ M. In the second Experiment, propranolol was ICV injected at doses of 0, 20, 40 and 80  $\mu$ M and in the third Experiment the agonist was ICV injected to the pretreated broilers with the antagonist. In all the experiments food intake was measured at 15, 30, and 60, 120 and 180 minutes after agonist injection.

**Results & Conclusion:** The results suggested that propranolol does not induce any significant alteration in food intake, while isoproterenol increased food intake significantly ( $P \leq 0.05$ ) at the highest dose; and this effect was abolished by pretreatment with propranolol. The findings, similar to those obtained in mammals, showed a minor role for  $\beta$ -adrenergic receptors in food intake in broilers. Further investigation on  $\alpha$ -adrenergic system will clarify the effect of adrenergic system on food intake.

**Keywords:** Intracerebroventricular, propranolol, isoproterenol, broiler.

### Effect of glyceryl trinitrate on the plasma levels of hepatic enzymes in guinea pigs

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**Objectives:** The organic nitrate, glycerol trinitrate (GTN), is believed to release nitric oxide (NO) and to increase the cGMP level, with in turn relaxes the vascular smooth muscle. Its main use is to relieve chest pain in patients with angina pectoris, although treatment of acute heart failure is also an indication. Most adverse effects related to nitrates are attributed to the extension of their vasodilating effect. The present work was carried out to evaluate the adverse effect on GTN on some hematological factors as well as on hepatic functions in an animal model.

**Materials & Methods:** Healthy, guinea-pigs were treated subcutaneously with 0- 250  $\mu$ g/kg of GTN (twice daily with 8 hour intervals, 5 days per week, in month). On day 31, they were sacrificed by overdose of sodium thiopental, blood samples were taken immediately through heart puncture. Number of blood cells, pcv, total protein, fibrinogen, ALP, creatinine, AST, ALT, bilirubine in blood were measured using routine medical laboratory techniques. Results were calculated as mean  $\pm$ SEM and were analyzed using ANOVA and bonferronis test. When  $p < 0.05$ , the difference between a treated group and the control animals was considered to be statistically significant.

**Results & Conclusion:** No significant changes occurred in the numbers of erythrocytes, neutrophils, lymphocytes, eosinophils, monocytes and basophiles, and in the PVC and the levels of total protein, serum protein, ALT, non-conjugated bilirubine, and fibrinogen. However, significant (up to 8.9 times); ALP (3.6 times), AST (up to 2.4 times), conjugated bilirobines (up to 19.2 times) and total bilirobine (up to 6.2 times).

**Keywords:** Glyceryl trinitrate, plasma level, hepatic.



### Therapeutic and Methaphylactic Effects of Florfenicol Therapy During Natural Outbreak of Sheep Pasteurellosis in Bushehr Province

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**Objectives:** Pasteurellosis, caused by *Mannheimia haemolytica* is of considerable economic importance to the sheep industry causing septicemia in young lambs, pneumonia and mastitis in older sheep. Florfenicol, a synthetic fluorinated chloramfenicol derivative, which is a broad spectrum antimicrobial agent and active against Gram + and Gram - bacteria. This drug is highly effective for the treatment of respiratory disease. because it is impractical to segregate affected animals from in-contact individuals, metaphylaxis is encountered as control element to stop the further spread of the disease. The objective of this study was to determine therapeutic and metaphylactic effects of florfenicol in sheep pasteurellosis.

**Materials & Methods:** 30 sheep in a 250 capitates flock were affected pulmonary pasteurellosis within 2 weeks that was manifested with depression, inappetance, mucopurulent nasal discharge, coughing, abnormal breath sound and fever. All affected sheep were injected single 40 mg/kg BW dose, SC. For metaphylaxis, unaffected sheep in flock received florfenicol at the same dose, SC. Before the beginning the study, three sheep had died that *mannheimia haemolytica* was identified from their lung tissue samples. Following treatment, the sheep were monitored for 72h, then they were monitored every 48 h, for 21 days and were examined their general health and vital sign within

**Results & Conclusion:** 93% of affected sheep were recovered within 1-3 after treatment with florfenicol (95% confidence interval for this proportion, based on the binomial distribution is 99.2%- 77.2%). General health and vital sign returned to normal in the affected sheep. Also, our result showed high protection in the at risk unaffected sheep when treated with florfenicol (>95%). pasteurellosis is one of the main problem in sheep and bovine respiratory disease. Florfenicol because of pharmacokinetic parameters including excellent concentration in bronchial secretion and raring resistance in the target pathogens, is an attractive antimicrobial agent for both therapy and metaphylaxis of respiratory disease. Traditional prophylaxis of bovine respiratory disease has been positively evaluated for this drug. Florfenicol is comparable with tilmicosin in the treatment of respiratory disease. Based on the results of this study, it can be concluded that a single florfenicol injection is a valuable drug and good choice in treatment and metaphylaxis of sheep pasteurellosis.

**Keywords:** Therapeutic, Methaphylactic, Florfenicol, Natural Outbreak, Sheep Pasteurellosis

### Effect of acepromazine on tear production as measured by Schirmer tear test in normal cats

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**Objectives:** This study aimed to evaluate the effect of acepromazine on Schirmer tear test I results in clinically normal cats. Eight healthy cross-breed cats were selected for the study. They were sedated with acepromazine (0.2 mg/kg). All cats had Schirmer tear test (STT) readings taken prior to sedation and at 15 and 25 min post sedation.

**Materials & Methods:** Sedation with acepromazine in cats with normal pre-sedation STT 1 values caused a statistically significant decrease in mean values of tear production. The mean  $\pm$  SEM STT at T15 and T25 were  $4.31 \pm 0.98$  ( $P < 0.001$ ) and  $5.18 \pm 1.07$  ( $P = 0.002$ ) respectively. Comparison between T15 and T25 ( $P = 0.49$ ) revealed no significant differences.

**Results & Conclusion:** These observations indicated that acepromazine significantly reduced tear production in clinically normal cats. In cats, clinicians should measure STT values prior to utilizing acepromazine as sedative in order to accurately assess the results. Moreover, sterile ocular lubricant or tear replacement should be used as a corneal protectant during sedation with this drug.

**Keywords:** Acepromazine, cats.



### Effects of epidural administration of xylazine or lidocaine on bovine uterine motility and perineal analgesia

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**Objectives:** The objective of this study was to evaluate and compare the effects of caudal epidural (sacral-coccygeal interspace) administration of xylazine or lidocaine on uterine motility and perineal analgesia in the cow.

**Materials & Methods:** 11 Sarabi cows (7 d post estrus) were assigned to one of three treatment groups: control (5 ml saline); lidocaine (0.3 mg/kg, 2% solution); and xylazine (0.05 mg/kg suspended in 5 ml saline), with each cow randomly assigned to each treatment over a period of three estrous cycles. Uterine motility, perineal analgesia and overt signs of sedation were recorded. Data were collected at 10-min intervals starting 10 min before treatment and continuing until 60 min post treatment. At 60 min post treatment, oxytocin (20 units) was administered iv. to serve as a positive control for the study.

**Results & Conclusion:** In the xylazine group, uterine motility significantly ( $P < 0.05$ ) increased at 20 min post treatment, peaked at 30 min, and gradually decreased to non-significant levels at 50 min post treatment when compared with the lidocaine and control groups. Additionally, xylazine produced a higher degree and longer duration of perineal analgesia than lidocaine. Systemically, epidural xylazine produced signs of sedation, salivation, vocalization and bradycardia. Ataxia was also observed in the xylazine-treated group which may have been induced through a local and/or systemic effect. The individual properties of xylazine and lidocaine should be taken into consideration when performing an obstetrical procedure requiring the use of an epidural analgesic agent and they should be utilized to benefit the clinician in performing the procedure.

**Keywords:** xylazine; lidocaine; bovine uterine motility; epidural; perineal analgesia.

### The Role of Prostaglandins in the Regulation of Blood Glucose: An Experimental Study

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**Objectives:** Introduction & Aim of the Study: It is believed that prostaglandins (PGs), particularly PGE<sub>2</sub>, play a role in the regulation of insulin secretion in some animal species. To reveal more insight into this issue, we examined the effect of sodium diclofenac, an inhibitor of cyclo-oxygenase and PG production in the rabbit.

**Materials & Methods:** Materials & Methods: Twenty four adult rabbits were divided into 3 groups of 8 each. They received 0, 80 or 160 mg/kg of sodium diclofenac intramuscularly. Blood samples were taken serially 1, 4, 8, and 24 h after the injection. Blood glucose was measured by means of a portal glucometer (Glycotronic C made by Clandon Scientific Ltd., Aldershot, UK). Data were analyzed with repeated measures analysis of variance and, then, group by group with a post hoc statistical test. A P value less than 0.05 was taken as a statistical significant difference.

**Results & Conclusion:** Results: Injection of sodium diclofenac caused decreases in the glucose levels in both doses applied. The decrease, based on the dose and time of measurement, ranged between 14-30% in comparison to the corresponding control groups ( $P < 0.05$ ). From these findings, it is suggested that special attention should be taken into account in the diabetic patients under simultaneous insulin and NSAID treatment; neglecting this point may exacerbate the insulin-induced, hypoglycemic shock in the patient.

**Keywords:** Blood glucose, Diclofenac, Insulin, Rabbit



### In vitro Evaluation of Antipasteurellosis Effect of Different Extracts of *Syzgium cumini*

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**Objectives:** The outbreaks of duck pasteurellosis which occur during monsoon period, caused by avian strains of *Pasteurella multocida*, is a serious problem with high mortality and morbidity affecting younger age groups. Eventhough there are antibiotics for the treatment of this disease, it is high time to think about an alternative to these antibiotics due to the resistance developed by them. With an objective of evolving safe and eco-friendly ethnoveterinary medicine, *Syzgium cumini* (*S. cumini*) leaves which had antibacterial action, was selected and tested for its efficacy against pasteurellosis by in vitro methods.

**Materials & Methods:** The successive extracts of the plant materials were made using different solvents, viz, petroleum benzene, chloroform, acetone, methanol and water. These extracts were utilized to test the antibacterial effect using microtitre plate technique to estimate the minimum inhibitory concentration (MIC) and disc diffusion method was performed to estimate the zone of inhibition. Dimethyl sulfoxide (DMSO) was selected as vehicle at a concentration of 400 µl. Various concentrations of the successive extracts of *S. cumini* - 200 µg, 500 µg and 1 mg/well were used to find out the MIC and zone of inhibition.

**Results & Conclusion:** The results obtained from the microtitre plate technique revealed that the aqueous, chloroform, direct chloroform and petroleum benzene extracts of *Syzgium cumini* showed MIC value at 200 µg. Zone of inhibition was exhibited by aqueous, methanolic and acetonic extract of *Syzgium cumini* at 1mg, 500 µg and 200 µg. Since aqueous extract showed minimum inhibitory concentration at 200 µg and greater zone of inhibition at 200 µg, 500 µg and 1 mg than other successive extracts it was further quantified using spectrophotometric method. Alkaloids, phenolic compounds and tannins were quantified and the results of the present study showed that *S.cumini* leaves could be effectively used in the treatment of duck pasteurellosis.

**Keywords:** *Pasteurella multocida*, Microtitre plate, MIC, Disc diffusion, zone of inhibition, *Syzgium cumini*.

### Effect of Temperature, pH, Sodium Chloride and Antibiotic on Growth of *Saprolegnia* sp. and *Achlya* sp. Isolated from Infected Common Carp (*Cyprinus carpio* L.)

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**Objectives:** *Saprolegnia* sp. and *Achlya* sp. were isolated from infected Common Carp (*Cyprinus carpio*).

**Materials & Methods:** ). Effects of Temperature, pH, Sodium Chloride and Antibiotic on the mycelial growth of *Saprolegnia* sp. and *Achlya* sp. were studied.

**Results & Conclusion:** The optimum Temperatures for mycelia' growth of *Saprolegnia* sp. and *Achlya* sp. were 25° C and 25-30° C respectively. The optimum pH for mycelial growth was 7-9 in *Saprolegnia* sp. and 6-8 in *Achlya* sp. While, the growability of fungi in GY agar contained of Sodium Chloride showed that *Saprolegnia* sp. was able to tolerate up to 30-35 ppt but *Achlya* sp. was exhibited growth and tolerate up to 10-15 ppt. Sensitivity and survival were determined for Antibiotics, out of the 14 antibiotics tested only Nalidixic exerted a significant growth inhibiting effect. From this study one can suggest that effect of Temperature, pH, Sodium Chloride and Antibiotic on the growth of fungi were different in *Saprolegnia* sp. and *Achlya* sp.

**Keywords:** *Saprolegnia* sp., *Achlya* sp., Sodium Chloride, Common Carp (*Cyprinus carpio*), Nalidixic exerted.



### Toxicologic Pathology of Piperazine (Phinothiazine) in wild pigeon at Basrah Southern Iraq

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**Objectives:** A three months Toxologic pathology study of piperazine (phenothiazine) in male wild pigeons by oral intubation was done.

**Materials & Methods:** The study was done at three dosage levels as low (0.25 ml.), intermediate (0.50 ml.) and high (1 ml.) with untreated control. Clinical observation of treated did not show significant changes only the birds appeared to the quite after dosing for short time. A macroscopically no obvious changes can be detected.

**Results & Conclusion:** Microscopically, minimal diffuse vacuolation of hepatocytes and varying number of barnachymal foci of inflammatory cells, mostly mononuclear cells. In treated birds a renal lesions were characterized by dilated cortical tubules mostly the proximal convoluted tubules with different levels. The nervous system with no histopathological could be seen in cerebrum, but, vacuolation of perking cells was noticed in cerebrum in some of treated birds, while, the most significant histopathological changes were in spinal cord as varying numbers of degenerate/ vacuolated nerve fibers at all treated levels but most sever at high dose levels, the other changes but to less extents were in sciatic nerve as there were only few to occasional with less severity as they were on the way of recovery. Heart showed foci/areas of infiltrating but cells between myocardial muscles cells with occasional vacuolated myocardial muscles cells. The pancreas showed histopathological changes were restricted to islets of langerhanse, which showed evidence of degeneration characterized by vacuolation.

**Keywords:** Toxologic pathology, piperazine, wild pigeons, inflammatory cells, vacuolation.

### Protective Effect of Pomegranate Juice against Experimental Lead Poisoning in Rats

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**Objectives:** The purpose of this study was to evaluate the therapeutic efficacy of pomegranate pericarp extraction as a chelator in lead toxicosis in rats. Lead chelators containing -COH, -OH, NH<sub>3</sub> and -SOH groups that conjugate lead and eliminate it from the body. Punicalagin, one of most active constituent of the pomegranate with multiple -OH groups may act as a chelator for heavy metals. Although traditional chelators decrease blood and tissue lead burden, suffers by various side effects. Therefore, research for new chelators particularly natural materials is needed.

**Materials & Methods:** Thirty two Wistar rats were randomly divided into 4 groups, 8 each. Group 1 received no treatment or lead acetate. Animals of group 2 exposed to 1000 ppm of lead acetate in drinking water for 35 days. Group 3 and 4 exposed to lead acetate as the rats of group 2, but treated concurrently by pomegranate pericarp extract twice a day with dose of 100 and 200mg/kg respectively. In day 37, after autopsy and sampling liver, kidney, brain and bone were removed and tissue lead content were measured with atomic absorption (Perkin Elmer AAnalyst 800). Also cu, Fe and

**Results & Conclusion:** Pomegranate extraction significantly reduced lead concentration in bone, kidney and brain tissues ( $p < 0.05$ ). The results showed that pomegranate extraction with dose of 200mg/kg significantly decreased bone and brain lead concentration. Also pomegranate extraction with dose of 100mg/kg significantly decreased kidney lead concentration. No significant changes were observed in Fe, Cu and Zn concentration of liver and serum. Current chelators for lead poisoning include BAL, Succimer, D-penicilamin and CaNa<sub>2</sub>EDTA. These compounds conjugate lead and eliminate it from the body. The result of this study shows that pomegranate pericarp extraction has therapeutic effect in treatment of lead toxicosis in rats. Its application is also safe and has not any side effects on essential elements in blood and tissues.

**Keywords:** Pomegranate, lead, rat.



### Studies on Indian herbals in treatment of infectious Bacterial species - *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Proteus mirabilis*, *Klebsiella* sp., *Salmonella enteritidis*, *Shigella flexneri*

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**Objectives:** The ethanol extracts of 4 medicinal plants belonging to different families were evaluated for antibacterial activity against medically important bacteria viz. *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Proteus mirabilis*, *Klebsiella* sp., *Salmonella enteritidis*, *Shigella flexneri*. The in vitro antibacterial activity was performed by agar disc diffusion and agar well diffusion method. The MIC values of the extracts were quantitatively assessed by a macrobroth dilution method. The ethanol extracts showed some degree of antibacterial activity against the tested bacterial strains. The MICs of four 95% ethanolic leaves extracts of the medicinal plants were showed good antibacterial activity against the tested both

**Materials & Methods:** The dried plant products are powdered well individually by using mixer grinder and were sieved using a nylon sieve in order to remove plant fibre. The larger particles were again, grinded with the help of mixer grinder and sieved through a fine cloth (mesh size <50µm) to obtain the products in uniform size. Each crude extract (500 mg/ml) was dissolved in 20 % DMSO and diluted with sterile water to the required test concentrations. Test organisms were incubated in 100 ml nutrient broth for 18 h at 37 °C. The cultures were centrifuged at 4000 r.p.m.

**Results & Conclusion:** The percentage of extract yield was differed among the tested plants. The plant namely *Achillea millefolium* has resulted the lowest yield of 22.5 grams, *Rhinacanthus nasutus* has shown up 24.8 grams, *Cassia fistula* with 25.3 grams. Among the three plants *Ocimum basilicum* has resulted more yields with 26.3 grams when compared to all other extraxts. In this present study, a total of four Ethanol leave extracts from *Cassia fistula*, *Achillea millefolium*, *Rhinacanthus nasutus*, *Ocimum basilicum* were tested against human pathogenic bacteria. The MIC values of the extracts were quantitatively assessed by a macrobroth dilution method. The MIC values of the extracts were quantitatively assessed by a macrobroth dilution method. The ethanol extracts showed some degree of antibacterial activity against the tested bacterial strains. The MICs of four 95% ethanolic leaves extracts of the medicinal plants were showed good antibacterial activity against the tested both Gram-positive and Gram-negative bacteria. However, tested plants significantly differ in their activity against test microorganisms. Amongst the plant species screened, ethanol extract of *Cassia fistula* bark, *Ocimum basilicum* leaves showed best antibacterial activity.

**Keywords:** Antibacterial activity, bacterial species, medicinal plants.

### Study of Anthelmintic Activity of Aerial Parts of *Capparis spinosa* in vitro

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**Objectives:** *Capparis spinosa* belongs to the family capparidaceae. It is Xerophytic growing in a broad range of climatic conditions, like dry deserts to cooler places of mountain. Many species of *Capparis* are reported from Iraq from north to southern plateau of the country.

**Materials & Methods:** Ethanol and aqueous extracts from the aerial parts of *Capparis spinosa* were investigated for their activity against earthworm *Lumbricus terrestris*. Various concentrations (200 and 400 mg/ml) of both extracts were tested in the bioassay which involved determination of time of paralysis and time of death of the worm. Dose dependent activity was observed in both of the extracts and the result shows that the ethanol extracts possesses more activity than aqueous extract.

**Results & Conclusion:** Albendazole (20 mg/ml) was included as standard reference and distilled water as control. The preliminary phytochemical analysis indicated the presence of various phytoconstituents in both tested extracts. In conclusion the use of the aerial part of the plant *Capparis spinosa* as an anthelmintic was confirmed and further studies as suggested to isolate the active principles responsible for the activity.

**Keywords:** *Capparis spinosa*, Anthelmintic assay, *Lumbricus terrestris*, Albendazole.



### Histopathological Study of *Barbus sharpeyi* gill exposed to Eugenol

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**Objectives:** In the last decade, interest for using herbal medicine is growing. Eugenol is herbal agent which is extracted from clove oil. In recent years, this agent has been employed in aquaculture on few species. But introducing of new drugs and agents to biological systems must be performed after conducting some examinations and toxicity test and studying the potential side effects. The aim of this study was to study of histopathological effects of Eugenol on Gill of *Barbus sharpeyi* (mahi beni).

**Materials & Methods:** *Barbus sharpeyi* fingerlings (mean weight: 5±1 gram) were transferred in aquaria (30 L per aquarium) in fisheries laboratory, Khoramshahr Marine Science and Technology University. All aquaria were aerated. After adaptation, fish fingerlings were exposed to different concentrations of Eugenol (1, 10, 50, 100, 150 and 200 ppm). Behavioral changes and mortality rate was recorded based on macfarland (1959). For histopathological examination, specimens were collected from each of treatments on mentioned times and after euthanizing gill samples were fixed in formalin buffer 10% and undergone to tissue processing.

**Results & Conclusion:** Histopathological analysis showed that gill lesions have significant relation with Eugenol concentrations ( $p<0.05$ ). Also, gill lesions were decreased by time increasing, at concentrations of 1 and 10 ppm, and increased at concentrations of 50 to 200 ppm. Cell swelling and hyperemia of gill filaments was at low concentrations and secondary filaments hyperplasia, epithelial cell necrosis and severe haemorrhagia at high concentrations were seen. Based on the results, Eugenol may be used in Aquaculture as anesthetic agent only at low concentrations (lower than 50 ppm) and the fish should not be exposed for long time.

**Keywords:** Eugenol, *Barbus sharpeyi*, Gill, Histopathology.

### Antimicrobial Susceptibility and Enzyme Production of Bacterial Isolates from Cows Mastitis in Basrah Province

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**Objectives:** Mastitis is the inflammation of the mammary gland in response to bacterial invasion. Clinical and subclinical mastitis are two major forms of intra-mammary infections in dairy cows. Clinical mastitis results in alterations in milk composition and appearance. The aim of this study was to analyze bacterial causative of bovine mastitis and determined for their resistance to different antimicrobial agents and their ability to enzyme production.

**Materials & Methods:** A total of 75 milk samples were collected within 3 months, from November 2009 to January 2010, from cows with clinical mastitis. Bacterial isolates were identified, determined of the geographical distribution. Antimicrobial susceptibility to selected antimicrobial agents was analyzed using disc diffusion method. Ability of enzyme production was determined.

**Results & Conclusion:** A total of 165 bacterial isolates consisting of 75 *Staphylococcus aureus*, 51 *Escherichia coli*, 15 *Yersinia*, and 12 for each of *Enterobacter* and *Klebsiella*. The percentage of prevalence of *S. aureus* isolates by the geographical location of Basrah province were highest in the southern (30%), followed by northern (14.4%) then western (14 %) of Basrah province. *S. aureus* isolates were sensitive to Gentamicin, Kanamycin, Chloramphenicol and Streptomycin, while they were resistant to Penicillin and Ampicillin. Most of Gram negative bacteria were sensitive to Gentamicin and Chloramphenicol and were resistant to Penicillin, Ampicillin and Tetracycline. All *S. aureus* isolates (100%) were production for Lipase, Lecithinase and Gelatinase, while (80%) were produce  $\beta$  Hemolysine and (20%) were produce  $\alpha$  Hemolysine. The present study highlighted the ability of *S. aureus* to produce of enzymes which contribute in the inflammatory of the mammary gland; it reveals that they may involve in cow mastitis.

**Keywords:** Cow mastitis, Milk, Bacteria, Antimicrobial susceptibility, Enzyme production, Basrah.





### Efficacy of Ivermectin on Goat Gastrointestinal Nematode

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**Objectives:** Goats infected with gastrointestinal nematodes were submitted to fecal investigations and injected subcutaneously with ivermectin.

**Materials & Methods:** In group 1, 2 goats were treated with 0.2 mg/kg ivermectin. In group 2, 2 goats were treated with 0.4 mg/kg ivermectin. In group 3, 2 goats were treated with two doses (every dose 0.2 mg/kg) of Ivermectin with an interval of 7 days.

**Results & Conclusion:** Results showed that 0.2 mg/kg ivermectin is effective for the control of gastrointestinal nematodes of goats; this dosage is also effective against nematodes suspected to be resistant to other anthelmintics. The administration of 0.4 mg/kg did not induce greater or more prolonged effectiveness. The supposed decrease of ivermectin's residual activity on Day 28 might be avoided by administering two doses with an interval of 7 days. No side effects were observed in treated animals.

**Keywords:** Gastrointestinal Nematode; Goat; Ivermectin.

### Study on efficacy of different antibiotics in treatment of calf pneumonia

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**Objectives:** The choice of an efficient antibiotic in treatment of calf pneumonia is usually an important decision in dairy farms, because of the preventing of advanced pneumonia, chronic pneumonia, decrease recurrence and resuscitating calves with pneumonia.

**Materials & Methods:** Based on case control studies and history taking, calves suffering from pneumonia in Zagros dairy farm of Shahrekord were recruited to evaluate efficacy of antibiotics in the treatment of calf pneumonia (1013 calf selected from 22 May 2007 to 21 May 2008). The antibiotic, duration of treatment and supportive therapy were recorded. Based on recurrence or improvement of pneumonia, the efficacy of each antibiotic was investigated.

**Results & Conclusion:** This survey indicated that Enrofloxacin, Tilimicosin, Lincospectin, combination of Oxytetracycline and Tylosin, Excenel, combination of penicillin and Gentamicin, Pantrisul, combination of Oxytetracycline and Pantrisul, and combination of Penicillin and Pantrisul were employed in Zagros dairy farm to treat the cases for 45.85%, 42.75%, 4.5%, 3.35%, 1%, 0.98%, 0.69%, 0.69% and 0.19% respectively. The percentage of recurrence of calf pneumonia for almost all employed antibiotics such as Enrofloxacin and Tilimicosin were 37.5% and 38.5% respectively. This survey indicated that Enrofloxacin may be better than Tilimicosin for treatment of calf pneumonia.

**Keywords:** Pneumonia, Calf, Antibiotic.



### Effect of silymarin on lipid peroxidation in serum of heat stressed ewes using thiobarbituric acid test

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**Objectives:** Silymarin a natural hepatoprotective drug with numerous functions, including antioxidant property. Heat stress has adverse effects on milk production and pregnancy rate in sheep and cow. Oxidative stress occurs during the time of heat stress and it is proposed that Silymarin may reduce the heat stress damages. Oxidative stress produced cytotoxic aldehyde is the base of thiobarbituric acid test which shows the amount of fat peroxidation products in the body.

**Materials & Methods:** The aim of this research was to evaluate effect of silymarin on serum MDA of ewe in normal (winter season) and heat stress (summer season) conditions. Ten over atomized sheep were used in this study. They divide into same control (n=5) and test (n=5) groups. The study was conducted in winter and summer. To determine the temperature humidity index (THI), humidity and temperature were recorded on daily basis. In treatment group, one gram of silymarin was administrated orally for 4 weeks on daily basis. There was not any treatment in control group. Blood samples were taken once in two weeks at 0, 14 days.

**Results & Conclusion:** The result showed that silymarin administration during different seasons was not change serum MDA concentration ( $p>0.5$ ). Serum MDA levels during summer and winter were significantly different, although there was no difference between control and treatment group. The result of this research revealed that administration of one gram silymarin did not affect serum MDA level during winter and summer.

**Keywords:** Silymarin, heat stress, ewes, MDA level.

### Genotoxicity assessment of Amaranth and Allura red using *Saccharomyces cerevisiae*

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**Objectives:** 1-To check the DNA damaging effects of Amaranth and Allura red using *Saccharomyces cerevisiae* through comet assay. 2-To assess direct genotoxic potential of Amaranth and Allura red.

**Materials & Methods:** *Saccharomyces cerevisiae* was cultivated in yeast peptone D glucose medium. Yeast cells were collected by centrifugation at 300(x) g for 3 minutes and were resuspended in sorbitol buffer. Comet assay was standardized by treating *Saccharomyces cerevisiae* with different concentration of H<sub>2</sub>O<sub>2</sub>. To evaluate the direct effect of Amaranth and Allura red comet assay was applied to yeast cells by making different dilutions of dyes in distilled water from 9.76g/ml to 5000g/ml and cells were incubated at two different temperature conditions 28° C and 37°C.

**Results & Conclusion:** No genotoxic activity was observed for Amaranth and Allura red at 28° C. At 37°C the effect of treatment of Amaranth in relation to concentration was highly significant at  $P \leq 0.01$ . No positive relation was seen with time exposure. The minimum concentration of Amaranth at which DNA damage observed was 1250 g/ml and mean comet tail length observed after 2 hour exposure was 7.840.10m. The highest concentration 5000 g/ml showed mean comet tail after 2 hours exposure was 8.580.12 m. The effect of Allura red treatment in relation to concentration was observed significant at  $P \leq 0.05$ . Significant relation was observed with concentration of Allura red and tail length. Whereas, the effect of Allura red in relation to time exposure was highly significant at  $P \leq 0.01$ . At 37°C the minimum concentration of Allura red at which DNA damage observed through comet assay was 1250 g/ml after two hour exposure and mean comet tail length observed at 1250g/ml after 2 hour was 8.150.10m. At highest concentration 5000g/ml mean comet tail was 8.150.10m after 2 hours.

**Keywords:** Genotoxicity, Comet assay, *Saccharomyces cerevisiae*, Hydrogen peroxide.



### Comparative Efficacy of Four Anthelmintics for Control of Ovine Gastrointestinal Nematodes in Boukan City

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**Objectives:** The efficacy of injectable levamisol, a mixture of levamisol and niclosamide, injectable ivermectin, oral albendazole was evaluated in 3 farms with the dose recommended by the manufacturer.

**Materials & Methods:** In farm (1) 5 sheep and in farm (2) 5 sheep were used. The selection of the animals was done based on their weight and an initial fecal egg count (FEC) which must exceed 100 eggs per gram (EPG). Animals were randomly divided into five groups: LV (injectable levamisol), NC (levamisol and niclosamida), IV (injectable ivermectin), AZ (albendazol), and C untreated control group.

**Results & Conclusion:** The FEC was carried out on 10 and 4 days before and the day of drenching to assess the level of parasitic infection. A fecal egg count reduction test (FECRT) was performed at the 10th day to all groups. Three days after drenching one animal per group were slaughtered to determine the worm burden in each group. The results obtained showed evidences of *Haemonchus* spp. These results were reinforced with the predominance of each genus when helminthological necropsies were carried out. The efficacy of the other products (IV, and AZ) did not differ at the 10th day after drenching. These results indicated that the imidazotiazole group shows a low level of anthelmintic resistance reaching to a questionable efficacy, but the rest of the products seem to be effective against gastrointestinal parasites in sheep.

**Keywords:** Anthelmintics; Gastrointestinal Nematodes; Sheep; Boukan.

### Effect of synbiotic biomin imbo on humoral immunity against infectious bursal disease in broiler chickens (Ross-308)

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**Objectives:** Susceptibility of birds to pathogenic infection in intensive husbandry system has emphasized on necessity of improvement of innate and specific immune responses of birds. Increased bacterial resistance to antibiotics has caused an interest to focus in substitute of pre-, pro- and nutro-biotics as an alternative to sub-therapeutic antibiotics in livestock. The current study investigates the effects of Biomin Imbo as a bio-symbiotic on immune responses to vaccination against IBD in broiler chickens (Ross-308). The results indicated that administration of Biomin Imbo enhanced the antibody responses to infectious bursal disease in vaccinated chickens.

**Materials & Methods:** One hundred eighty broiler chicks were allocated to three groups (three replicates/group): (A) vaccinated +feed containing biomin Imbo, (B) vaccinated+feed without Biomin Imbo, and (C) control (unvaccinated+feed without Biomin Imbo). Synbiotic of biomine imbo (ETOUK, Biomine GmbH, and Austria) was supplemented in feed. Vaccination was carried out based on optimal timing of maternal antibody level on 16-days-old using D78 vaccine (Intervet) by eye-drop route and repeated on day 24 of age. ELISA (IDEXX kits) test was used to determine antibody titers of the samples taken on day-0 and weekly intervals. SPSS was used for statistical analysis.

**Results & Conclusion:** The maternal antibody titer against IBD were decreased gradually and reached to nearly breakthrough level on day 16, which vaccination took place as recommended based on Doventer's formula. Antibody titer of the chickens in both groups A and B increased by day 28 of age, while those of the chickens group C continuously decreased indicating of uncontaminated environmental conditions. Antibody titer of vaccinated chickens in group fed with biomine imbo reached to 2325 (ELISA, IDDEX) on day 42 of age while those of group B reach to 2047 (ELISA, IDDEX) which were lower than those of group A, but the difference was not significant. Some reports indicated that prebiotics (Oliveria et al., 2009) improve antibody responses against IBD. There are also some reports that probiotics improve antibody responses in general (Panda et al., 2000; Cross, 2002; Kabir et al., 2004). In conclusion, supplementation of Biomine imbo enhances the immune response following vaccination but the difference is not significant.

**Keywords:** Synbiotic, Biomin imbo, Infectious bursal disease, Humoral antibody, broiler.



### Acetaminophen Toxicity in a 5-Year-Old Terrier

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**Objectives:** A 5-year-old, neutered male terrier was presented with acetaminophen toxicity (325 mg tablets). The owner had found that his dog ate 10 acetaminophen tablets. The dog was edematous, lethargic, depressed and dehydrated (mild, <5%). The capillary refill time (CRT) was more than normal limits (>2s). Furthermore, the dog was tachycardic (187 beats/min) and had no appetite.

**Materials & Methods:** Because of the time that dog had ingested the tablets, activated charcoal was not administered. So, intravenous fluid therapy (0.9% sodium chloride solution) was prescribed. The antidote N-acetyl cysteine was purchased from the pharmacy of the nearest human hospital. N-acetyl cysteine was administered IV mixed in an equal volume of saline. Afterwards, based on the veterinary reference books, sodium bicarbonate solution (PO) and ascorbic acid (SC) were prescribed.

**Results & Conclusion:** Five hours after initial therapy, depression, inappetence and dehydration were removed. Meanwhile, the CRT returned to the normal scale (<2s). Tachycardia persisted. The whole body edema was decreased, particularly around the dog's face. In dogs, symptoms of acetaminophen toxicity are seen within 4 to 12h after consumption. So, it is important to initiate N-acetyl cysteine therapy as soon as possible. Owners should be careful about the availability of human drugs for dogs.

**Keywords:** Acetaminophen toxicity, Terrier, N-acetyl cysteine.

### Report of Metronidazole Toxicosis in a 9-Year-Old Cat

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**Objectives:** A 3.9 kg, 9-year-old, male domestic short haired cat was presented because of vomiting, anorexia, depression, tremor and ataxia. The cat had been treated with metronidazole hydrochloride for protozoal infection (presumptive giardiasis). This pet animal had received the drug (111mg/kg body weight per day, PO) for three weeks before presentation.

**Materials & Methods:** Diagnosis was based on a history of having received metronidazole, showing relevant symptoms and eventually, significant recovery of the cat upon cessation of the drug. After physical examination, the cat was administered normal saline (IV) and dexamethasone (IV). Afterwards, metoclopramide and prednisone were prescribed. At the end, along with prescriptions for supportive care drugs at home, the dog was referred to the small animal hospital, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran.

**Results & Conclusion:** During treatment period, most of the symptoms of metronidazole toxicosis were suppressed. After four hours, clinical improvement was seen in the cat. Vomiting was stopped and the cat started to eat. Meanwhile, tremor and ataxia were significantly decreased. In cats, the most commonly reported side effects of oral administration of metronidazole include lethargy, anorexia, salivation, vomiting, diarrhea, and CNS disorders. The majority of cases of metronidazole toxicosis have cured following the cessation of drug. The clinical signs in cats removed within days of initiating supportive therapy and withdrawal of the drug.



### Effect of transient hypothyroidism on thyroid gland characteristics in lamb

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**Objectives:** This study was conducted to investigate the effect of induced transient hypothyroidism by propyl-2-thiouracil (PTU) on lambs' thyroid gland histomorphology.

**Materials & Methods:** Eighteen Lori-Bakhtiari male lambs were divided to 3 groups (n=6) and received one of treatments as Control (C: 0 mg PTU/kg BW), Low (L: 10 mg PTU/kg BW) and High (H: 20 mg PTU/kg BW) by gavages, within 60 d of experiment. At the end of experimental period, four lambs of each treatment were slaughtered and thyroid gland was removed to evaluation histomorphological characteristic.

**Results & Conclusion:** Mean concentration of T4 and T3 decreased significantly in L and H groups compared with C group ( $p<0.05$ ). Hypothyroidism decreased, total number of follicles, number of Large follicles, Small number of follicles, Number of active follicles, Diameter of large follicles, diameter of small follicles, height of epithelium active follicles, height of epithelium inactive follicles and increase Number of active follicles ( $p<0.05$ ). In conclusion PTU can induce hypothyroidism and decrease active follicles, diameter follicles, diameter follicles and the height of epithelium follicles in thyroid gland.

**Keywords:** Hypothyroidism, mal lambs, thyroid gland histology.

### A survey on epidemiology of urinary tract infections and resistance pattern of uropathogenes in Milad hospital

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**Objectives:** Urinary tract infections (UTIs) represent one of the most common diseases encountered in medical practice today. It is estimated that about 20-30% of adult women experience UTI once during their life time. However its impact and frequent vary in different population. UTIs occur at the rate of 2-3% of hospital admission and account for 35-40% of all noscomial infections. Studies have shown that the urinary tract is the commonest source of nosocomial infection especially when the bladder is catheterized.

**Materials & Methods:** In a prospective study from March to June 2009 ,a total of 11308 urine sample from patients admitted to Milad hospital of Tehran were analyzed .Each sample was inoculated with 0.01 ml platinum loop onto blood agar and MacConkey agar plates. All plates were incubated at 35°C for 24-48h. Positive cultures were identified by criteria as defined earlier. All Isolated bacteria were identified by standard bacteriological tests. Susceptibility test was perfumed by disk diffusion methods as recommended by clinical laboratory standard institute.

**Results & Conclusion:** 11308 urine culture and 1020 non-duplicate pathogen were isolated during our study. Out of 1020 patients, 227 were male and 793 were female. 224 patients were hospitalized and 796 were outpatients. 224 were hospitalized patients, 53 patients had urine catheter. *E. coli* with 620 isolates was the most common cause of UTIs followed by *K. pneumoniae* with 115 isolates. *P. aeruginosa* accounted for 30 of all isolates. Among gram positive Cocci, Enterococcus spp with 110 isolates and *S. aureus* with 86 isolates were the predominant organisms. 85% of isolates of *E. coli* were resistant to ampicilin while this figure was 90% for *K. pneumoniae*. Nearly 30% isolates of *E. coli* and 15% isolates of *K. pneumoniae* were resistant to ofloxacin while 73% isolates of *P. aeruginosa* were resistant to this antibiotic .Nitrofurantoin was the most effective antibiotics against *E. coli* and only 0.05% isolates of this organism was resistant to this antibiotics. In this study the distribution of microorganisms causing UTIs and their antibiotics susceptibility pattern was investigated. In this study, *E. coli* was the most abundant uropathogen with 60% of all isolates.

**Keywords:** Urinary tract infections, drug resistance.



### Detection of some antibiotic residues in poultry carcasses slaughtered in an industrial abattoir of Mashhad

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**Objectives:** Antibiotics are drugs that designed to treat different infectious diseases. Over use of antibiotics in farm animals like poultry as food additive, not to stop illness but to encourage rapid growth will increase presence of drug residues in livestock products. The problem of drug residues develop drug resistance, changing the natural microflora of digestive system, increase incidence of allergy in susceptible individuals, direct toxicity and interference in meat fermentation technology products. One of the main causes of drug residues is violation of withdrawal time. As a result of that, drugs usually accumulated in kidney, liver, fat, muscle and other tissues.

**Materials & Methods:** In this study, by use of four plate test, presence of different antibiotics in ten broiler flocks of poultry, referred to Mashhad slaughter house were investigated. 160 samples from breast muscle and liver tissue were collected. The samples prepared as a disk and individually placed into each plate. The plates containing *Bacillus subtilis* with pH 6, 7.2, 8 and the plates containing *Micrococcus luteus* were incubated at 30°C and 37°C respectively. All samples were evaluated after 24 hours.

**Results & Conclusion:** The results of this study showed that 18.75% of samples had antibiotic residues and 6.99% of samples were suspected. By use of Fischer exact test, comparison of herd's samples was performed. In 30% of herds, the presence of antibiotic residue at least in one liver sample and in 80% of herds the presence of antibiotic residue at least in one meat sample were confirmed. It is concluded that, quantity of antibiotics use and their withdrawal time should be controlled more effectively in food animals.

**Keywords:** Antibiotic residues, Poultry, Meat, Withdrawal time.

### Acetaminophen-induced toxicosis in cats and Effects of various antidotal treatments on acetaminophen toxicosis

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**Objectives:** Cats are sensitive to acetaminophen-induced toxicosis, and toxic signs may be observed after the administration of as little as half a tablet (163 mg). In cats, acetaminophen toxicosis usually occurs after intentional administration of the drugs by owners. Acetaminophen, also known as paracetamol in many countries, has become a popular analgesic and antipyretic for human use since being advertised as a 'safer' alternative to aspirin many years ago. As acetaminophen became available in many over-the-counter and prescription products, reports of acetaminophen toxicity in dogs and cats became more common.

**Materials & Methods:** Oral N-acetylcysteine (NAC), IV NAC, and IV sodium sulfate were evaluated as treatments for cats dosed orally with toxic sublethal doses of acetaminophen (APAP). Six cats were given single oral doses of 120 mg of APAP/kg of body weight followed by the respective antidote at 4.5, 8.5, and 12.5 hours after APAP dosing in 3 separate trials. The cats were given each antidotal treatment in random order with at least 3 weeks segregation the individual APAP-treated trials. Clinical signs, plasma APAP half-lives, clinical chemical values, and APAP urinary excretion and metabolites were studied.

**Results & Conclusion:** Results were compared (P less than 0.05) with each other and with those of a control group of 6 cats given identical APAP doses, but given no antidotal treatment. At the dosage levels used, oral NAC, IV NAC, and IV sodium sulfate were equally effective antidotes, as measured by decreased methemoglobinemia, reduced glutathione, decreased APAP half-lives, and increased urinary excretion of the APAP-sulfate conjugate. All the antidotal treatments produced results significantly different from those in the control cats. A statistically significant increase in the control cats in Methemoglobin (MHB) formation (21.7% and 45.5% respectively) occurred following the high doses. Reduced blood glutathione (GSH) concentrations decreased significantly during the first 24 h after the high APAP dose and returned to normal by 192 h. NADPH glutathione reductase activity decreased significantly following the high dose.

**Keywords:** Acetaminophen; Cats; Methemoglobin; Sodium sulfate; N-acetylcysteine.



### Development and Clinical Use of New Experimental Foaming Tablet for Intrauterine Use in Cows with Postpartal Endometritis

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**Objectives:** Postpartal endometritis is a common health problem in dairy cows. It is also well known that cows with postpartal endometritis have a strong tendency to recover spontaneously but antibiotic treatment is often also necessary. For local antibiotic therapy different intrauterine pharmaceutical products are available usually containing tetracyclines, aminoglycosides or cephalosporins. Unfortunately today they are not efficient enough because of drug resistance of the causative bacterial strains. This was the main reason to develop the new tablet for intrauterine use in cows with endometritis and to study its clinical efficacy.

**Materials & Methods:** The study was conducted in two experiments each using 12 cows. In the first experiment (group) cows with endometritis (5 with mild and 7 with severe clinical endometritis) were treated with experimental foaming tablet. The first intrauterine administration of the tablet was performed immediately after clinical examination and the second treatment two to three days later. Cows from the second group (6 with mild and 6 with severe clinical endometritis) were treated with registered foaming tablet containing 1.0 g of oxytetracycline in the same way as cows in the first group. Before the treatment of all cows but also

**Results & Conclusion:** The predominant organisms involved in mild endometritis in cows of both groups were *Escherichia coli*, *Staphylococcus*, *Bacillus* and *Streptococcus*, in moderate endometritis these were *Staphylococcus*, *Pseudomonas aeruginosa*, *Arcanobacterium pyogenes* and *Streptococcus*. Cows treated with experimental foaming tablet had more rapid clinical and much better bacteriological recovery from endometritis than animals treated with foaming tablet containing oxytetracycline. According to the clinical findings, antibacterial spectrum and antibacterial activity of the antibiotic used in the experimental foaming tablet we believe that the tablet has significant potential for the treatment of endometritis but also for its prophylactic use. We are looking for a veterinary pharmaceutical company ready for collaboration on putting the tablet on the market.

**Keywords:** Endometritis, Cow, Foaming intrauterine tablet, Therapy.

### Antihyperlipidaemic Efficacy of *Pennisetum glaucum* Bran in Albino Rats

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**Objectives:** The objective of the study was to determine lipid lowering efficacy of *Pennisetum glaucum* (Pearl millet) bran in hyperlipidaemic albino rats.

**Materials & Methods:** One hundred and eighty healthy adult male albino rats were randomly divided into six equal groups. Except normal control group I, on routine rat feed, rest of groups were provided with atherogenic diet for a period of 0-15 days, considered as a lead-in period to induce hyperlipidaemia. *P. glaucum* seed bran was fed to hyperlipidaemic rats at the dose level of 2, 4 and 6 g/kg to treated groups IV, V and VI, respectively and synthetic cholesterol lowering drug, Simvastatin, 0.6 mg/kg to treated control group III, for 15-60 days as replacement of cellulose

**Results & Conclusion:** *P. glaucum* bran at dose rate of 2, 4 and 6 g/kg showed lipid lowering efficacy in hyperlipidaemic rats at post-treatment days 30, 45 and 60. At the level of 6 g/kg, *P. glaucum* bran was able to produce a significant ( $P < 0.05$ ) increase in HDL-cholesterol (47%) and fall in other lipid profile parameters i.e. total lipids (41%), triglycerides (48%), total cholesterol (39%) and LDL-cholesterol (55%). *P. glaucum* 6 g/kg also reduced total cholesterol in liver tissue and increased faecal bile acid secretion. The results of present study suggest that 6 g/kg *P. glaucum* bran and 0.6 mg/kg Simvastatin were equally effective in treating hyperlipidaemia in albino rats. Moreover, the potency of *P. glaucum* for stimulating faecal bile acid secretion in albino rats may safely be conceived, at least, as a part of mechanisms for its antihyperlipidaemic efficacy.

**Keywords:** Cholesterol, cholic acid, Pearl millet, hyperlipidaemia, simvastatin.



### Isoflurane MAC after alfentanil administration in cats

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**Objectives:** To evaluate effect of incremental doses of alfentanil on isoflurane minimum alveolar concentration (MAC) in cats and determine whether alfentanil reduces isoflurane MAC and if so, maximal isoflurane MAC reduction.

**Materials & Methods:** Anesthesia was induced in 6 healthy cats with isoflurane and was maintained for 60 minutes at 1.3 isoflurane MAC. Arterial blood measurement of gas tensions, pH, and plasma alfentanil concentration and arterial blood pressure was performed. Isoflurane MAC was determined in triplicate, and alfentanil was administered i.v; isoflurane MAC was determined at each alfentanil concentration. Cats were allowed to recover and the process was graded as poor, good, or excellent.

**Results & Conclusion:** Alfentanil had a significant dose effect on isoflurane MAC reduction. Significant regression was found for normalized isoflurane MAC versus estimated plasma alfentanil concentration. MAC reduction was estimated to be maximal at a plasma alfentanil concentration. Significant differences were evident in rectal temperature, bicarbonate concentration, base deficit, arterial carbon dioxide and oxygen tensions, and arterial pH between isoflurane alone and some plasma alfentanil concentration and the corresponding reduction in isoflurane concentration. Infusion of alfentanil resulted in maximal MAC reduction midway between that reported for horses and dogs. At such plasma alfentanil concentration, adverse effects were minimal, but included increase in rectal temperature, metabolic acidosis, and decrease in PaO<sub>2</sub>. Provided cats were not handled during the recovery period, recovery was smooth and quiet. Infusion of alfentanil decreases the need for potent inhalant anesthetics in cats and could potentially be a clinically useful anesthetic regimen in sick cats.

**Keywords:** Alfentanil; Isoflurane; cat.

### Effect of fennel (*Foeniculum vulgare*) on carbon tetrachloride-induced hepatotoxicity in rats

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**Objectives:** Diuretic, analgesic and antipyretic activity has also been found in the fennel fruit (*Foeniculum vulgare*) as well as antioxidant activity. The most frequently investigated was the essential oil which showed antioxidant, antimicrobial and hepatoprotective activity. The aim of the present study was to assess the effect of essential oil of fennel on carbon tetrachloride-induced hepatotoxicity in rats.

**Materials & Methods:** Four groups of rats were used as group1: control; group2: Ccl<sub>4</sub>; group3: Ccl<sub>4</sub>+ fennel; group4: fennel. Drugs were administrated for 10 days. The serum of rats was collected and analyzed biochemically. The mean of ALT, AST, total protein and albumin was compared between groups.

**Results & Conclusion:** The results showed the mean of ALT and AST was significantly increased by ccl<sub>4</sub>. The elevation of AST was prevented by fennel. The mean of total protein and albumin was increased by fennel. The fennel has protective effect on carbon tetrachloride-induced hepatotoxicity probably by antioxidant action.

**Keywords:** Ccl<sub>4</sub>, Hepatotoxicity, Rats, Fennel.





**Investigating therapeutic effect of 2.5% albendazole suspension against gastrointestinal nematods, cestods, trematods and liver flukes in cattle**

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**Objectives:** Gastrointestinal parasite infections in cattle are responsible for several clinical syndromes and profound production losses. Anthelmintic resistance is now widespread and control requires for integrated management strategies.

**Materials & Methods:** In this study 10 cattle herds from Shahrekord city-Charmahal Bakhtiari province were selected for clinical examination. Five cattle were randomly selected from each herd and fecal samples gathered from the rectum to determine parasite infestation rate. Out of 50 cattle, 21 were contaminated. Infested cattle were divided in A, B and Control groups; group A(treatment dose),group B(two times treatment dose),control(feed water).EPG was done in hours 12,24,36 and days of 7 and 14 after treatment.EPG was used for evaluation in this study.

**Results & Conclusion:** This study showed that 2.5% albendazole suspension in treatment dose and two times treatment doses has the highest effect on nematode eggs of digestive system in 24 hours after treatment and treatment dose has no effect on trematods and cestods but two times treatment dose showed the highest t reducing effect on trematods and cestods.

**Keywords:** Albendazole, nematod, trematod, cestode, EPG.

**Antimicrobial Susceptibility of *Ornithobacterium rhinotracheale* Strains in Broiler Chickens at Khorasan Razavi Province, Iran**

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**Objectives:** The purpose of this study was to determine antimicrobial susceptibility pattern of *Ornithobacterium rhinotracheale* (ORT) strains of broiler chickens against 18 antibiotics using Kirby-Bauer diffusion test in the broiler chickens in Khorasan Razavi province, Iran. ORT is a cause of both primary and secondary respiratory disease in chickens so in recent years has increased awareness of the significance of ORT due to confusion with other respiratory disease and economic loss in poultry. This study is the first report of ORT isolation and drug sensitivity test in the broiler chickens flocks in Khorasan Razavi province, Iran.

**Materials & Methods:** During the period of this study from June 2010 to June 2011 a total of 150 samples were obtained, 10 samples from each flocks. Lungs, infraorbital sinus samples were inoculated on 7 percent sheep blood agar media and incubated at 37 °C for 48 h in candle jars. The colonies were identified using colony, microscopic morphology and standard biochemical test procedures. Colonies grown on blood agar plates were suspended in brain heart infusion broth and the suspension was swabbed on the surface of blood Mueller Hinton agar, followed by the application of antibiotic discs.

**Results & Conclusion:** Antibiogram patterns of all ORT isolates were determined. All of strains were found susceptible to Tiamulin, Oxytetracycline, Furazolidone, Florfenicol, Enrofloxacin, Doxycycline, Danofloxacin, Chlortetracycline, Chloramphenicol, Lincospectine and all the isolates were resistant to trimethoprim sulfadiazine, Neomycin, Lincomycin, Gentamycin, Flumequin, Erythromycin, Difloxacin and Colistin. ORT is a new poultry pathogen associated with respiratory disease and for the control of ORT infection, besides the general procedures of biosecurity, treatment of the infected flock with antibiotics has been used. There is no available information on the sensitivity and resistance to antibiotics of ORT, in our region so the results are likely to be representative of the current situation in ORT in broiler chickens of Khorasan Razavi province, Iran. Antibiogram of the isolates were carried out with veterinary antimicrobial drug disc and human drug disc was not used although it is difficult to compare the present results with other investigators results since sensitivity patterns differ slightly from region to region. It can be concluded that the therapeutic potentials on ORT for all tested antibiotics are likely to be impaired by widespread occurrence of resistance. This research was supported by Razi Vaccine & Serum Research of Mashhad.

**Keywords:** Antibiogram, *Ornithobacterium rhinotracheale*, Poultry, Iran



### Effect of ferrite-cobalt nano particles on serum biochemical factors changes in rats

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**Objectives:** Importance and application of nano-particles are increasing and their toxicological effects are essential. Cobalt and iron are essential co-factors in red blood cell (RBC) production and function. Thus, present study was designed to evaluate effect of ferrite-cobalt (CoFe<sub>2</sub>O<sub>4</sub>) nano-particles on serum biochemical factors changes in rats.

**Materials & Methods:** combustion synthesis of CoFe<sub>2</sub>O<sub>4</sub>. Size of particles was determined by TEM at 10-50 nanometers. One group of Wistar rats (6 rats each group) received ferrite-cobalt nano-particles suspension at dose 10 mg/kg-IP daily for 10 day. Another group of rats received saline (as control group). The rats were euthanized and blood and then serum was collected. Activity of ALT and AST, level of BUN, creatinine, sodium and potassium was measured in serum of rats.

**Results & Conclusion:** Activity of ALT and AST was not different between groups. Level of BUN, sodium and potassium was elevated and Level of creatinine decreased significantly by nanoparticles (p<0.002). Thus, Ferrite-cobalt nano-particles may impair renal function.

**Keywords:** Ferrite-cobalt nano-particles, renal toxicity, Rat.

### Antifungal activity of Nettle (*Urtica dioica*) aqueous extract against fish pathogen (*Saprolegnia parasitica*)

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**Objectives:** Fungal infections are one of the main factors responsible for mortality and economic loss to the fish industry in the world. Nettle (*Urtica dioica*) is widely grown in different parts of the world and has been used to promote health. The aim of this study was to evaluate the antifungal activity of Nettle (*Urtica dioica*) aqueous extract against the fish fungal pathogen, *Saprolegnia parasitica*.

**Materials & Methods:** The tested fungi were grown on Sabouraud dextrose agar (SDA) medium. The leave extracts of Nettle (*Urtica dioica*) was tested against *Saprolegnia parasitica* using agar diffusion method. The experiment was conducted in vitro. Three doses of aqueous extract and control (0, 250, 350, 700 ppm) with 5 replications were used at 22±3 C°. The data of mycelium growth inhibition recorded at 12, 24, 36, 48, 60, 72 hours after inoculation.

**Results & Conclusion:** Different extract of *U. dioica* showed inhibitory effects against *S. parasitica*. Aqueous extract of *U. dioica* at 250 ppm showed inhibitory effect on the radial growth of *S. parasitica*. At a concentration of 250 ppm, the extract recorded 63% at 12 hours which rose to 69% at 24 hours and fell to 59% and 55.2% at 36 hours and 48 hours respectively. The antifungal activity latter increased to 55.6% at 60 hours. Increasing of doses did not effect on inhibitory of mycelium growth. Aqueous extract of *U. dioica* can be used to treat infection *S. parasitica* in fishes.

**Keywords:** Antifungal activity, in vitro, *Saprolegnia parasitica*, *Urtica dioica*.



### Effect of Nettle (*Urtica dioica*) ethanolic extract on growth rate of *Saprolegnia parasitica*

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**Objectives:** The outbreak of diseases is a limiting factor in fish culture. Malachite green is considered the most effective chemical for *Saprolegnia parasitica* but it is teratogenic and mutagenic properties Therefore it is banned the United State and some other countries. Using of herbal extract is necessary to control of fungal disease instead of malachite green. The objective of this study was to evaluate the in vitro effects of nettle (*Urtica dioica*) ethanolic extract against fish pathogen (*Saprolegnia parasitica*).

**Materials & Methods:** The tested fungi were grown on SDA medium, on petri dishes for 3 days. Each of the tested extracts was used at different concentrations: 350, 700, 1050, 1400 ppm and control. The agar dilution method was used for determining the inhibition of mycelial radial growth of the test organisms by the Nettle extract. The data of mycelium growth inhibition recorded at 12, 24, 36, 48, 60, 72 hours after inoculation.

**Results & Conclusion:** The finding showed that the test fungi were inhibited by the ethanolic extract of *Urtica dioica* compared with control. The rate of growth was high in *Saprolegnia parasitica*. The antifungal activity of *Urtica dioica* decreased in all concentration during the time. Ethanolic extract of *U. dioica* at 350 ppm showed better inhibitory effect on the radial growth of *S. parasitica* compared with the other concentration. The radial growth mean of *Saprolegnia parasitica* was high and the inhibitory effect low in all levels. It is necessary to test the other concentration for finding the best inhibitory concentration of *Urtica dioica*.

**Keywords:** Ethanolic extract, *Urtica dioica*, antifungal activity, *Saprolegnia parasitica*.

### Effects of Mint (*Mentha piperita*) and Anise (*Illicium verum*) essential oils with and without organic acid on some blood parameters and haemagglutination inhibition test in broilers at first 21 days of age

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**Objectives:** To evaluate the effect of essential oils (EO) of Mint and Anise with organic acid on broiler performance. A total of 384 hatched broiler chicks were randomly allocated to 6 treatments with four replicates each. The experimental treatments were included a corn-soybean based diet as control, diet containing Mint EO (150 ppm), diet containing Anise EO (150ppm), diet containing a commercial organic acid (Orgacids® 3 g/kg), diet containing a combination of EO's of Mint and Anise (150ppm of each) and a diet containing a combination of Orgacids (3g/kg) and Anise (150ppm of each).

**Materials & Methods:** Blood samples were obtained after killing broilers on 21 days. The blood samples were allowed to clot at room temperature and centrifuged for 15 minutes at 3000rpm. HI was determined for NDV in serum samples. Blood samples were centrifuged for 3 minutes at 15000 rpm, haematocrit values were determined. CBC differentiated has done and heterophil /lymphocyte ratio was measured.

**Results & Conclusion:** The result showed that addition of organic acid and essential oils of Mint and Anise had no significant effect on red blood cells count and haematocrit values in broilers at 1-21 days of age when compared with control ( $p>0.05$ ). Essential oil of Mint, combination of Mint and Anise EOs and combination of organic acid and essential oils significantly ( $p<0.05$ ) increased the haemagglutination inhibition test (HI) against Newcastle disease virus in comparison with control. The combination of organic acid and essential oils had no significant effect on heterophil /lymphocyte ratio. However, essential oil of Anise significantly ( $p<0.05$ ) increased the heterophil /lymphocyte ratio in comparison to Orgacids. In conclusion, the results of this experiment showed that addition of Mint and Anise essential oils to the diet had no effect on red blood cells and haematocrit values in first 21 days of age of broiler chickens, and addition of organic acid and its combination with essential oils significantly ( $p<0.05$ ) increased HI and heterophil /lymphocyte ratio in broiler chickens.

**Keywords:** Anise, Haemagglutination, Haematocrit, Mint, Organic acid.



### Effects of Clove Oil Essence Loaded on Iron Nanoparticles on Aminotransferase Enzymes in Rainbow Trout

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**Objectives:** Aspartate aminotransferase (AST) is found in many body tissues including heart, muscle, kidney, brain, lung and liver. When body tissue or organ is damaged, additional AST is released into the bloodstream. Alanine aminotransferase (ALT) is found in large amounts in the liver, and small amounts of this enzyme are also found in the heart, muscle, and kidney. When the liver is injured or inflamed, the levels of ALT in the blood usually rise. This study was carried out in order to examine the effects of clove oil essence loaded on iron nanoparticles on amounts ALT and AST in rainbow trout.

**Materials & Methods:** 40 number rainbow trout mean weight 158±2g located in 4 groups. 3 groups were anesthetized by concentrations 10, 25 and 50 ppm of clove oil essence loaded on iron nanoparticles and fourth group was indicator. Fish were transferred into separate tanks after anesthesia, and blood samples were collected by cutting of the caudal peduncle from 4 groups at 3 and 24 hours after recovery times. Blood samples were centrifuged and the biochemical indices determined in blood plasma included AST&ALT. Data were analyzed with one-way analysis of variance by using SPSS16 for Windows. Differences between means were determined using Duncan's multiple tests.

**Results & Conclusion:** Results indicated that anesthetizing with different concentrations of clove oil essence loaded on iron nanoparticles have no significant effects on amounts ALT and AST in rainbow trout. Because recommended dose for induction anesthesia in rainbow trout was 10 ppm in this research, therefore fivefold of recommended have no side effect even. A comparison result of this research by results of other researches is indicating that clove oil essence after loading on iron nanoparticles become more safe and effective.

**Keywords:** Aminotransferase enzymes, Anesthesia, Clove oil essence, Iron nanoparticles, Rainbow trout

### Protective Effect of oral administrations of silymarin on blood biochemical parameters of rainbow trout exposed to sub-lethal diazinon

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**Objectives:** In the last years, lots of efforts have been paid to replace chemical drugs by herbal medicine in aquaculture industry in many countries. *Silybum marianum*, commonly known as 'milk thistle' (Family: Asteraceae/ Compositae) is one of the most important herbal medicines used in traditional treatment of liver failures and diseases, food and drug poisoning. In addition, the protective effect of silymarin at preventing different xenobiotic-induced hepatotoxicity, cardiotoxicity, nephrotoxicity, neurotoxicity has been previously proven. The aim of the present study was to investigate the effect of the oral administrations of silymarin on diazinon toxicity in fish.

**Materials & Methods:** In this experiment, 180 fingerling rainbow trout were subdivided into five groups, a control group and five experimental groups. Experimental fish were fed by food enriched with 0.00, 100, 400 and 800 mg of silymarin per kg food during 4 weeks and were simultaneously exposed to 0.2 mg/L diazinon, organophosphate pesticide. Plasma alanine aminotransferase (ALT), aspartate aminotransferase (AST), lactate dehydrogenase (LDH), alkaline phosphatase (ALP), creatinine kinase (CK), glucose, total protein, creatinine, triglyceride and cholesterol levels were measured after 14 and 28 days of treatment.

**Results & Conclusion:** Although, significant elevations in ALT, AST, LDH, ALP and CK activities as well as glucose, creatinine, triglyceride and cholesterol levels and significant reduction in total protein concentrations in plasma of fish exposed to diazinon were observed, oral administration of silymarin, in particular the concentration of 400 mg/kg of food, to treat fish by diazinon causing regulation the levels of these biochemical parameters. In conclusion, on the basis of these results, oral administration of silymarin to fish poisoned with diazinon might prevent disturbance of homeostasis of blood biochemical parameters.

**Keywords:** Silymarin, Herbal medicine, Rainbow trout, Diazinon, Blood biochemical parameters.



### Protective Influence of Silymarin on Antioxidant Defense System in liver and Hematological Parameters of Rainbow trout Treated with Diazinon

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**Objectives:** In recent years, the use of herbal medicine in the diet of commercial fishes has been employed in aquaculture science. Milk thistle (*Silybum marianum*) is traditionally used herbal medicine used in treatment of liver failures and diseases, food and drug poisoning. In addition, the protective effect of silymarin at preventing different xenobiotic-induced hepatotoxicity, cardiotoxicity, nephrotoxicity and neurotoxicity has been previously proven. The aim of the present study was to investigate the protective effect of the oral administrations of silymarin on antioxidant defense system in the liver cells and hematological parameters of rainbow trout treated with diazinon.

**Materials & Methods:** In this experiment, 180 fingerling rainbow trout were subdivided into five groups, a control group and five experimental groups. Experimental fish were fed by food enriched with 0.00, 100, 400 and 800 mg of silymarin per kg food during 4 weeks and were simultaneously exposed to 0.2 mg/L diazinon, an organophosphate pesticide. The hematological parameters and superoxide dismutase (SOD) and catalase (CAT), glutathione peroxidase (GPx) and glutathione reductase (GR), cellular total antioxidant levels and lipid peroxide concentrations in hepatocyte of fish exposed to diazinon, were measured after 14 and 28 days of treatment.

**Results & Conclusion:** The hematological parameters such as RBC counts, Hct value and Hb concentration were significantly decreased in the blood of diazinon treated fish. Intoxication with diazinon was also followed by significantly increased lipid peroxide levels. Despite significant increase in activity of antioxidant defense enzymes such as SOD and CAT, in hepatocyte of fish exposed to diazinon, cellular total antioxidant levels, GPx and GR significantly decreased. Treatment with silymarin exhibited a protective role on the toxic effects of diazinon on the hematological values, lipid peroxide concentrations as well as on enzymatic and non-enzymatic components of antioxidant defense system.

**Keywords:** Silymarin, Herbal medicine, Rainbow trout, Diazinon, Hematological parameters, antioxidant defense system.

### Treatment methods of pathogenic or saprophytic fungi in Guppy fish (*Poecilia reticulata*) in Shahrekord area

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**Objectives:** Fungal infections are among the most common diseases seen in tropical fish. Because fungal spores are found in all fish aquariums or tanks, they can quickly colonize and create problems in stressed, injured or ill fish. Poor water quality can also lead to an increase in fungal infections in an otherwise healthy fish population. Most aquarium owners easily identify external fungal infections. Guppy fish (*Poecilia reticulata*) is a renowned ornamental fish and it is very resistant. Aim of this study was detection of existence and amount of fungal contamination in external coating (skin) and gill of Guppy fish.

**Materials & Methods:** 60 fishes were obtained from aquarium shops in Shahrekord. Parts of the gills picked by sterile scalpel and cultured on the SDA or CMA and GP media. Also, samples from skin were obtained and cultivated on the same media (SDA, CMA and GP media). Then, plates were incubated in 25 °C for one to two week. The colonies were identified and samples taken from the selected colonies and identified relying on slide culture and light microscopy. The isolated organisms from gill and skin of the fishes were *Penicillium* spp, *Aspergillus niger*, *Fusarium* sp and Yeast.

**Results & Conclusion:** In order to cure infected fish, 4 different methods were applied (Salt bath: 2% for 60 min, Formaldehyde: 250 ppm for 60 min, H<sub>2</sub>O<sub>2</sub> 800 ppm for 1-2 min, combination of Formaldehyde: 100ppm and Green malachite: 2.5 ppm for 60 min) for 5 days. Best treatment was performed with combination of Formaldehyde and Green malachite. Most aquarium owners will have to deal with a fungal infection at one time or another. Most infections will be successfully treated if acts early. Fungal infections are notorious for developing in unhealthy or injured fish, particularly in poorly-cared-for tanks. If you see a fungal infection in your fish, make sure to check the water quality and ensure that your tank is providing a healthy, safe, natural environment for all of your fish.

**Keywords:** Treatment methods, pathogenic, saprophytic, fungal disease, *Poecilia reticulata*, Formaldehyde.



### Antibiotic sensitivity of *Lactococcus garvieae* isolated from cultured rainbow trout (*Oncorhynchus mykiss*).

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**Objectives:** *Lactococcus garvieae* is the aetiological agent of lactococcosis, an emerging disease, which affects cultured freshwater with special incidence in rainbow trout (*Oncorhynchus mykiss*) in Chahrmahal Bakhtiari Province, Iran. Although *L. garvieae* is a pathogen of economic importance, data pertaining to pathogenesis of disease, control and treatment of disease were not known well. In the present study antibiotic sensitivity of *Lactococcus garvieae* isolated from cultured rainbow trout was evaluated.

**Materials & Methods:** *L. garvieae* strains were isolated from fish tissues such as kidney and spleen from different parts of Chahrmahal Bakhtiari Province. After culturing the bacteria, they were identified by biochemical tests. The isolated bacteria were seeded in Mueller-Hinton agar. Commercially available disks the following antibiotics were used: penicillin, ampicillin, kanamycin, amikasin, nalidixic acid, erythromycin, bacitracin, methicilin, cloxacilin, cefepime, florfenicol and enrofloxacin.

**Results & Conclusion:** The bacteria were showed resistance to ampicillin, nalidixic acid and cloxacilin. Among the other antibiotics, it seemed that the most effective antibiotic was florfenicol followed by enrofloxacin, erythromycin, bacitracin, methicilin, penicillin, kanamycin, amikasin and cefepime in order. Antibiotic resistance surveillance programs are necessary to monitor the susceptibility of bacteria to commonly used antibiotics. Such information is important to discover the development of resistance and the choice of appropriate antibiotics. The results of the present study provided useful information in the search for safe and efficient antibiotics. Further studies are necessary in order to confirm the effectiveness of these antibiotics at farm level (in vivo). Our findings also showed a high rate of antibiotic resistance among the strains of the aetiological agent of lactococcosis that can be transferred to other bacteria such as aetiological agent of Streptococcosis in fish farms.

**Keywords:** Antibiotic sensitivity, *Lactococcus garvieae*, isolated bacteria, *Oncorhynchus mykiss*.

### Study of antibiotic resistant of *Aeromonas hydrophila* causative agent of Haemorrhagic septicemia in farmed Gold fish (*Carassius auratus auratus*)

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**Objectives:** The goldfish (*Carassius auratus auratus*) is a freshwater fish in the family Cyprinidae of order Cypriniformes. It was one of the earliest fish to be domesticated, and is one of the most commonly kept aquarium fish. *Aeromonas hydrophila* is thought to be one of the most important bacterial pathogens of farmed freshwater fish, with a wide variety in pathogenicity patterns. *Aeromonas hydrophila* is a heterotrophic, gram-negative, rod shaped bacterium, mainly found in areas with a warm climate. This bacterium can also be found in fresh, salt, marine, estuarine, chlorinated, and un-chlorinated water.

**Materials & Methods:** In the present study, 20 isolated bacteria from 160 samples of farmed goldfish organs (liver, skin, kidneys) were subjected to antimicrobial susceptibility test using disk diffusion method on Muller Hinton agar plates via disks impregnated by the following antibiotics: penicillin, amoxicillin, ampicillin, oxytetracycline, tetracycline, erythromycin, flumequin, kanamycin, amikasin, nalidixic acid, enrofloxacin, and gentamycin. The highest resistance rates were related to ampicillin, penicillin, amoxicillin, flumequin, kanamycin, amikasin, nalidixic acid.

**Results & Conclusion:** *Aeromonas hydrophila* is associated with diseases mainly found in fish and amphibians, because these organisms live in aquatic environments. It is linked to a disease found in frogs called red leg, which causes internal, sometimes fatal hemorrhaging. When infected with *Aeromonas hydrophila*, fish develop ulcers, tail rot, fin rot, and hemorrhagic septicemia. Hemorrhagic septicemia causes lesions that lead to scale shedding, hemorrhages in the gills and anal area, ulcers, exophthalmia, and abdominal swelling. Histopathological investigation and microscopic examination of organs and tissues affected fish in different stages of disease revealed diagnostic clinical and pathologic signs relating to the presence of *Aeromonas hydrophila*. No other major bacterial or parasitic or viral agent could be diagnosed or isolated in further studies. Treatment was performed in two groups of fish using: oxytetracycline (50mg/kg bw/day for 7 days) and enrofloxacin (10mg/kg bw/day for 7 days) incorporated into the food during processing. This could significantly reduce mortality, morbidity and bacterial load in tissues from the fifth day of treatment in both treatment groups.

**Keywords:** *Aeromonas hydrophila*, *Carassius auratus auratus*, Antibiotics sensitivity.



### Chemical composition of the essential oils of *Stachys laxa* Boiss. and *Artemisia absinthium* L. and their synergistic antimicrobial activity with fluconazole and nisin against *Candida albicans* and *Escherichia coli* O157:H7

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**Objectives:** To determine the chemical composition of essential oil of *Stachys laxa* Boiss. and *Artemisia absinthium* L. and their antimicrobial interactions used lonely and in combination with nisin and fluconazole.

**Materials & Methods:** The plants were collected from their wild growing locations in Mazandaran and Golestan provinces. The plant species was confirmed in herbarium. The oil composition was identified using GC followed by GC/MS. The Minimum inhibitory concentrations (MICs) of the oils, fluconazole and nisin were determined using a microbroth dilution method. The Fractional Inhibitory Concentration Indices (FIC<sub>Ic</sub>) obtained from the checkerboard assay were used to interpret the antimicrobial interactions. The FIC<sub>Ic</sub> below than 0.5 were considered as synergistic.

**Results & Conclusion:** The major constituents of *S. laxa* Boiss. were hexadecanoic acid (31.9 %), germacrene D (14.7%), spathulenol (12.3%) and (Z,Z)-9,12-octadecadienoic acid (9.2%). Also, the main components of *A. absinthium* L. were trans-Sabinyl acetate (24.5%), myrcene (20.6%), trans-thujone (9.7%), para-cymen-8-ol (7.2%) and linalool (5.8%). The oxygenated monoterpenes were at the highest level. The MICs of the *S. laxa* Boiss. essential oil against *C. albicans* and *E. coli* O157:H7 were 0.6 mg/ml and 2.4 mg/ml, respectively. Also, the *C. albicans* and *E. coli* O157:H7 were inhibited at 0.4 mg/ml and 1.8 mg/ml concentration of *A. absinthium* L. essential oil, respectively. In addition, the MICs of nisin and fluconazole against *E. coli* O157:H7 and *C. albicans* were equal to > 0.2 mg/ml and 8 mg/ml, respectively. In all antimicrobial combinations (the oils + nisin or fluconazole) the FIC<sub>Ic</sub> were below 0.5 that indicated the synergistic interactions. It could be concluded that the differences between constituents of each aromatic plant resulted in various effects on microorganisms used lonely or in combination with other drug agents.

**Keywords:** *Stachys laxa* Boiss.; *Artemisia absinthium* L.; Essential oil; Nisin; Fluconazole; FIC<sub>Ic</sub>; Antimicrobial interactions.

### Effect of Novastar Pesticide on Biochemical Profiles in Male Rats

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**Objectives:** Novastar is a mixture of Abamectin and Bifenthrin and are primarily used for controlling crop pests in specific habitats. It is a mixture of avermectin B1a (80%) and avermectin B1b (20%) and Bifenthrin, is an insecticide and has been designated as "restricted used" on account of severe toxicity to the aquatic organisms. The aim of this study was to obtain information regarding its sub-toxicity if and when exposed to animals.

**Materials & Methods:** Male (n=15) rats of experimental groups were exposed orally to Novastar pesticide, with the dose of 24 mg/kg body weight for two weeks. Another group of male rats (n=15) of similar age were also kept as control. All rats were fed normal feed and fresh water ad libitum every day. At the end of experimental period, rats were decapitated and blood samples were collected and centrifuged for collection of serum. Liver, heart, kidney, brain, spleen, testes, adrenal and pituitary glands were also collected for their weight and further studies. Serum cholesterol, triglyceride, HDL and liver enzymes were determined

**Results & Conclusion:** Body weights between groups did not differ, while weights of brain, testes, spleen were significantly higher in experimental rats as compared to control rats. However, heart, kidneys, liver, pituitary and adrenal glands weight was lower (p<0.05) in experimental rats than the control rats. Cholesterol, LDL and triglyceride level was significantly low in male experimental rats than the control rats. HDL (high density lipoprotein) concentration was significantly higher (P<0.05) in novastar treated rats than the normal rats. Serum AST and ALT concentrations were low in treated rats than the normal rats. Liver enzymes like arylesterase and paraoxanase and TAS concentrations did decrease (p<0.05) in treated as compared to normal rats. Serum concentration of TOS (Total oxidant status) and cerulo plasmin did increase (p<0.05) in novastar treated male in contrast to control rats. In conclusion, subtoxic dose of Novastar (abamectin and bifenthrin) may have very little adverse effect on rats.

**Keywords:** Pesticide, Rats, Metabolic profiles, Toxicity.



### Drug resistance patterns of *Escherichia coli* isolates from cases of broiler chickens colibacillosis referred to poultry clinical science of Shahrekord University

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**Objectives:** Colibacillosis is the most common infectious bacterial disease of poultry and that collectively, *Escherichia coli* infections in their various forms are responsible for significant economic losses. *E.coli* is the primary causative agent of cellulitis, septicemia and airsacculitis in poultry. There are several antimicrobials that have been approved for treatment of *E.coli* infections. The problem of antibiotic resistant bacteria is one of growing concern in broiler chicken industry. The goal of this study was to determine the antimicrobial susceptibility of the *E.coli* isolates from the broiler chickens colibacillosis that referred to poultry clinical science of Shahrekord University.

**Materials & Methods:** Two hundred *E.coli* isolates from broiler's pericarditis lesions due to colibacillosis divided to three groups: 1-7, 7-21 days and more than 21 day. Isolation and identification of *E.coli* were performed by standard bacteriological methods. Samples were cultured on MacConkey agar. Colonies subcultured and identified based on Gram staining as well as morphological and biochemical characteristics (oxidase, indole, citrate, MR-VP test, HSP and carbohydrate fermentation). The antimicrobial susceptibility test was performed on Mueller-Hinton agar using the Kirby-bauer agar-disk diffusion method. Diameter data of no growth regions around the antibiogram discs were recorded.

**Results & Conclusion:** All isolates were susceptible to Fosbac and Soludox. The percentages of isolates that were resistant to the other 11 antibacterial agents were as follows: Enrofloxacin (0.73), Oxytetracycline (0.81), Doxycycline (0.64), Gentamicin (0.24), Soltrim + Methoprim (0.66), Ampicillin (0.16), Erythromycin (1), Ciprofloxacin (0.60), Florfenicol (0.63), Danofloxacin (0.83), Flumequine (1). A high prevalence of Erythromycin (1) and Flumequine (1) resistance at all sampling times were recorded. The purpose of this study was to investigate the influence of antimicrobial administration on the prevalence of resistance in *E. coli* strains isolated from broiler chickens colibacillosis. However, a low prevalence of resistance to Ampicillin (0.16) and Gentamicin (0.24) was seen and no age dependent antibiotic resistance in this study was observed. The information gathered from these types of studies may help us to manage the evolution of antimicrobial resistance in the future.

**Keywords:** *Escherichia Coli*, Colibacillosis, Antibiotic, Broiler chicken, Antibiotic resistance.

### Effects of oral suspension triclabendazole + Levamisole on cestodes of Ovine Gastrointestinal tract

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**Objectives:** In parasitic disease controlling, choice of treatment, the amount and frequency of drug administration must be considered. Under natural conditions, parasitic infection in most cases is a mixture of several types of parasites. Distribution of a variety of parasites depends on the weather and existing of good Primary and secondary hosts. In studies that have been done on antiparasitic drugs it is emphasized that the drug is effective on different types of parasites with wide range impact.

**Materials & Methods:** The infected sheep were detected and divided into four groups. Three treatment groups, received treatment dose (1 ml per 5 kg body weight) and 1.5 and two times of therapeutic dose and same volume of distilled water respectively. Faeces samples in 12, 24 and 36 hours after receiving treatment were collected to determine the EGP using flotation method by Saturated salt solution. Due to the toxic property of levamisole, sheep of the third group were monitored for 4 days.

**Results & Conclusion:** Effects of anti-parasitic drug levamisole and triclabendazole dose of 1 ml per 5 kg BW on sheep gastrointestinal cestode 12, 24 and 36 hours after feeding the drug were 27.4 % , 68.69 % and 91.82 % respectively and effects of anti-parasitic drug levamisole and triclabendazole dose of 1.5 ml per 5 kg BW on sheep gastrointestinal cestode were 47.39 % , 82.03 % and 95.58 % respectively and with dose of 2 ml per 5 kg BW on sheep gastrointestinal cestode , were 63.03 % , 90.91 % and 97.96 % respectively and the drug was effective. In this study, the oral suspension 8.75 % triclabendazole + levamisole in dosage of 1, 1.5 and 2 mg / 5 kg BW were tested and the results suggested a potential drug effect on cestodes of ovine digestive tract. Also, 4 days monitoring of the third group of sheep was associated with a negative report.

**Keywords:** Triclabendazole, Levamisole, cestodes, sheep.





### Effect of silymarin extract on immune system of rainbow trout (*Oncorhynchus mykiss*) challenged by diazinon

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**Objectives:** To date, discharge of agriculture pesticide into surface water is one of the biggest environment problems that can endanger the aquatic life. Impact of pollutants on the fish immune system cause it to be weakened as a result of increased sensitivity and become vulnerable to pathogen. Diazinon, one of the most common organophosphate pesticides that used in many agriculture areas of Iran and found in surface water. The purpose of this study was to investigate diazinon effect on fish immune system and employing Milk thistle plant extract, *Silybum marianum* to reduce adverse effects of this pesticide on the immune system of rainbow trout.

**Materials & Methods:** Rainbow trout were kept in 1000 l tanks with optimal condition. Food was prepared by adding silymarin supplement powder (400 mg/kg) to commercial pellets. Toxicological tests were performed according to OECD and physicochemical conditions of water were controlled daily. Chronic toxicity test was designed for 28 days. Each treatment group was challenged by diazinon (0/1 mg), the fish which were only fed by silymarin food supplement and fish which were fed with diazinon and they were also fed with silymarin food supplement.

**Results & Conclusion:** *Silybum marianum*, significantly reduced plasma levels of peroxidase, IgM, total complement, lysozyme of fish that had been exposed to diazinon for which the impact of diazinon on immune system in long periods was shown. No significant change was observed in the fish nourished by complementary diet and challenged by toxin compared with control group that indicated this protective effect of silymarin on immune system of rainbow trout.

**Keywords:** Diazinon, Silymarin, Rainbow trout, immune system.

### Effects of oral suspension triclabendazole + Levamisole on nematodes and trematodes of ovine gastrointestinal tract

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**Objectives:** In parasitic disease controlling, choice of treatment, the amount and frequency of drug administration must be considered. Under natural conditions, parasitic infection in most cases is a mixture of several types of parasites. Distribution of a variety of parasites depends on the weather and existing of good Primary and secondary hosts. In studies that have been done on antiparasitic drugs it is emphasized that the drug is effective on different types of parasites with wide range impact.

**Materials & Methods:** The infected sheep were detected and divided into four groups. Three treatment groups, received treatment dose (1 ml per 5 kg body weight) and 1.5 and two times of therapeutic dose and same volume of distilled water respectively. Faeces samples in 12, 24 and 36 hours after receiving treatment were collected to determine the EGP using flotation method by Saturated salt solution, and zinc sulfate saturation for Trematodes.

**Results & Conclusion** Effects of anti-parasitic drug levamisole and triclabendazole dose of 1 ml per 5 kg BW on sheep gastrointestinal nematodes, 12, 24 and 36 hours after feeding the drug, were of 32.95 %, 84.67% and 96.71% and on *Fasciola* and *Dicrocoelium* 41.59 %, 77.68 % and 95.72 % respectively and with dose of 1.5 ml per 5 kg BW on sheep gastrointestinal nematodes, were 78.03 %, 95.6 % and 98.9 % and *Fasciola* and *Dicrocoelium* , 68.81 %, 92.7 % and 99% respectively and with dose of 2 ml per 5 kg BW on sheep gastrointestinal nematodes, were 80.6 %, 96.76 % and 99.7 % and *Fasciola* and *Dicrocoelium* , of 79.19 %, 97.17 % and 99.29 % respectively and the drug was effective. In this study, the oral suspension 8.75 % triclabendazole + levamisole in dosage of 1, 1.5 and 2 mg / 5 kg BW were tested and the results suggested a potential drug effect on nematodes and trematodes the digestive tract of sheep populations.

**Keywords:** Triclabendazole, Levamisole, nematodes, trematodes.



**Influence of extract of milk thistle (*Silybum marianum*) on non-specific immune system of Carp (*Cyprinus carpio*) challenged by diazinon**

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**Objectives:** In recent years, use of medicinal herbal drugs as immune-stimulants and immune system booster in dietary of fish has increased. Unfortunately, the available information about this subject is very low and not sufficient. The purpose this study, was to investigate the effect of milk thistle (*Silybum marianum*) extract as complex silymarin on non-specific immune system of Carp (*Cyprinus carpio*).

**Materials & Methods:** Carps were kept in 500 l tanks. Food was prepared by adding silymarin supplement powder (400 mg/kg) to commercial pellets. Toxicological tests were conducted according to OECD and physicochemical conditions of water were controlled on daily basis. Chronic toxicity test was design on for 28 days. Each treatment group was challenged by diazinon (0/5 mg), the fish which were only fed by silymarin food supplement, fish were faced with diazinon and those fed with silymarin food supplement.

**Results & Conclusion:** In this experiment, changes of immunoglobulin IgM, total complement, and lysozyme and peroxidase levels in plasma were measured and no significant difference between levels of immunoglobulin IgM, total complement and lysozyme in plasma compared with control group were found at different samplings. Levels of peroxidase in plasma of fish fed by silymarin supplement dietary were significantly higher than control group. The result indicated that, extract of milk thistle, silymarin have positive effect on ability of immune system of fish. Significant reduction of plasma levels of peroxidase, IgM, total complement, lysozyme of fish that had been exposed to diazinon have been well illustrated the impact of diazinon on immune system in long periods. While, no significant change have been observed in the fish nourished by complementary diet and challenged by toxin compared with control fish group that indicated this protective and amplifier effect of silymarin on immune system of Carp .

**Keywords:** Milk thistle, diazinon, *Cyprinus carpio*, immune system.

**Investigating therapeutic effect of 250mg blouse of Triclobendazole on the Fasciola Hepatica in sheep**

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**Objectives:** Fasciola hepatica in ruminants is a common parasite of wild sheep, horses, donkeys and man has also been reported. triclobendazole is most effective on the adult and immature form of fasciola hepatica.

**Materials & Methods:** In this study 21 contaminated sheep were determine from 50 sheep with EPG. They were divided in A,B,control groups.group A (10mg/kg BW) ,group B( 2 times dose) and control (feed water). ).EPG was done in hours 24, 36 and days of 7 and 14 after treatment.( P<0.05)

**Results & Conclusion:** Results showed that the effect of Triclobendazole is 100% on the mature form of fasciola hepatica and 95% on the immature form.

**Keywords:** Triclobendazole.fasciola hepatica,sheep, EPG



### Comparison of hypericin and synthetic antidepressants effect on expression of morphine-induced conditioned place preference

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**Objectives:** The effect of hypericin on the expression of morphine – induced conditioned place preference (CPP) was investigated and compared with the effect of the synthetic antidepressants.

**Materials & Methods:** Adult male Wistar rats used in the experiments were 220-250 g at the beginning. The used drugs were morphine sulphate, hypericin, fluoxetine hydrochloride, imipramine hydrochloride and tranylcypromine sulphate. All drugs, with the exception of hypericin, were dissolved in saline; hypericin was dissolved in 1% ethanol and the solutions were injected IP or ICV. An unbiased CPP paradigm was used for six continuous days and consisted of three distinct phases including: preconditioning, conditioning and postconditioning. Animals were tested during the same time period (9:00 and 14:00 h) each day for every CPP paradigm phases. Values were reported as the mean change in preference  $\pm$  SEM, and difference in time (sec) spent in the least preferred compartment before and after conditioning. One-way ANOVA followed by a Tukey test was used to calculate significance levels between the drugs. A value of  $p < 0.05$  was considered significant.

**Results & Conclusion:** The results demonstrated that intraperitoneal (IP) injection of morphine sulfate (2.5, 5 and 10 mg/kg) significantly induce the CPP in rat. Intraperitoneal and intracerebroventricular (ICV) injection of hypericin and synthetic antidepressants augmented morphine – induced CPP. It has been suggested that the adrenergic, serotonergic and dopaminergic neurotransmissions play an important role in mediating the antidepressant effect of hypericin and this effect may be due to its inhibitory effect on reuptake of neurotransmitters. Morphine produces a reinforcement (reward) effect by activating the mu receptors that facilitate dopaminergic transmission. Serotonin is also a potent stimulator of dopamine release and an increase in brain serotonin could possibly stimulate the dopaminergic system. In conclusion, it may suggest that the augmentation of morphine – induced CPP by hypericin and synthetic antidepressants may be related to increasing dopamine and serotonin concentrations in synaptic clefts.

**Keywords:** Hypericin, antidepressant drug classes, morphine, conditioned place preference (CPP).

### Study of different doses of *Teucrium polium* effect on morphine withdrawal syndrome in mice

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**Objectives:** Morphine addiction is a serious problem that develops in people all around the world and is a major problem to face with in many countries. Morphine addiction abandonment can cause physical and emotional trauma and is rarely successful. In animal models of addiction, the withdrawal syndrome is also observed and the mechanism of the dependency is not clear. Previous studies have suggested that *Teucrium polium* can effect on nervous system and reduce neural excitability and visceral pain. The aim of the present study was to evaluate the effects of different doses of crude extract of plant *Teucrium polium* on opioid withdrawal.

**Materials & Methods:** 40 adult male mice were divided in 5 groups (two as sham and dependent) .In sham groups, saline was injected for 6 days and in dependent and treatment groups morphine was administered in a dose escalation fashion using doses ranging from 20 to 50 mg/kg once daily for 6 days. Also three treatment groups received different doses (100, 200 and 300 mg/kg) of *T. polium* extract 30 minutes before naloxone-induced withdrawal .At the end of 6th day withdrawal syndrome was induced with naloxone (3mg/kg) then the withdrawal scores was calculated.

**Results & Conclusion:** The total withdrawal index (TWI) in normal saline and no treatment control groups were  $19.8 \pm 1.4$  and  $58 \pm 0.4$  respectively. In groups receiving plant extracts the TWI values were reduced to  $45.3 \pm 1.6$ ;  $36.3 \pm 1.2$  and  $31.2 \pm 1.5$  ( $p < 0.05$ ) for 100, 200 and 300 mg/kg doses respectively. According to the data obtained, it seems that the hydroalcoholic extract of *Teucrium polium* can have potential benefit in improving the symptoms of opioid withdrawal syndrome.

**Keywords:** Key words: morphine, withdrawal syndrome, naloxone, opioids.



### Antioxidant activity and total phenolic content of Iranian Tea variations

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**Objectives:** Tea is the most widely consumed beverage worldwide and has become an important agricultural product in Iran. Tea leaves are considered to be important sources of polyphenols and antioxidant. The aim of this study was to evaluate the total phenolic and antioxidant activity of two Iranian tea (*Hibiscus sabdariffa*, *Camellia Sinesis*) in different boiling time. The total phenolics content was determined photometrically using the Folin-Ciocalteu method and antioxidant activity accessions were determined as FRAP (the ferric tripyridyltriazine (Fe (III)-TPTZ) complex to the ferrous tripyridyltriazine (Fe (II)-TPTZ)).

**Materials & Methods:** The samples were bought from local market. Extracts were prepared by adding boiling distilled water to tea leaves. Brewing times varied from 2 min up to 10 min in 2 min intervals. For measuring the antioxidant activity by using the Folin-Ciocalteu reagent absorbance at 765nm was measured after 2 h reaction time. FRAP assay depends upon the ferric tripyridyltriazine (Fe (III)-TPTZ) complex to the ferrous tripyridyltriazine (Fe (II)-TPTZ) by a reductant at low pH. Fe (II)-TPTZ has an intensive blue color and can be monitored at 593 nm.

**Results & Conclusion:** The results showed that *Hibiscus sabdariffa* have higher antioxidant activity and total Polyphenol Content. While increasing the boiling time (from 2 to 10) raised the amount of total phenolic contents. Our results showed that FRAP method is sensitive in the measurement of total antioxidant power of fresh biological fluids, such as plant homogenates and pharmacological plant products. Each herb generally contained different phenolic compounds, and each of these compounds possesses different amounts of antioxidant activity. A linear positive relationship existed between the antioxidant activity and total phenolic acids content of the tested teas. Iranian tea possesses valuable antioxidant properties for possible medicinal purposes.

**Keywords:** Antioxidant activity, Total phenol, FRAP, Folin-Ciocalteu, Tea.

### Evaluation of analgesic effect of hydroalcoholic extract of *Matricaria recutita* in writhing test

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**Objectives:** *Matricaria recutita* is a traditional herbal medicine widely used as an anti-inflammatory, sedative, spasmolytic and anti- allergic agent. This plant has been used in Iranian folkloric medicine for colic and other digestive disease. In this study antinociceptive mechanisms of *Matricaria recutita* were examined in writhing test as a model of visceral pain. For evaluating the antinociceptive mechanisms of *Matricaria recutita*, the effect of GABAergic, adrenergic, serotonergic and opioid receptor antagonists on *Matricaria recutita*-induced antinociception was evaluated.

**Materials & Methods:** 72 male mice were randomly assigned to 9 groups. I,II):sham and control that received normal saline and indomethacin. III,IV,V):received 50,100and200 mg/kg of hydro alcoholic extract of *M.recutita*. VI,VII,VIII,IX):at the first, mice were pretreated with either receptor antagonist of GABAergic (bicuculine),adrenergic(phentolamine), serotonergic (cyproheptadine), and opioid (naloxone), then received dominant doses of *Matricaria recutita* extract(200mg/kg). All animals were injected with acetic acid 0.6%for visceral pain induction and antinociceptive activity was expressed as of inhibition of abdominal constriction using the ratio: sham mean-treated mean ×100/sham mean.

**Results & Conclusion:** The result of study showed that hydroalcoholic extract of *Matricaria recutita* at doses of 50mg/kg,100mg/kg,and200mg/kg in dose dependent manner induced significant reduction in pain response in comparison with control group( $p<0.05$ ).Percentage of inhibition of writhing response exhibited by extract of 50mg/kg,100mg/kg,and200mg/kg were 51.22%, 62.21% and 74.21% respectively while indometacine inhibited the writhing response by 84%.Also in treatment groups, it showed that groups VI and IX show no significant alteration in pain response as compared with the sham group, and groups VII,VIII indicated significant reduction in pain response as compared with the sham group, and was 58,22% and53,37% respectively. According to the obtained data, it seems that the hydroalcoholic extract of *Matricaria recutita* can have potential benefit in inhibition of visceral pain and also it was concluded that GABAergic and opioid system have important role in this inhibition. Also the findings indicated that adrenergic and serotonergic system not involved in this process.

**Keywords:** *Matricaria recutita*, writhing test, visceral pain.



### Self treat by domestic animals' owners before approaching veterinary small animal clinic of Tehran University

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**Objectives:** These days increasing self treat is considered as one of the most important events not only in human health system but also in domestic animals health. Self administration of drugs by pets' owners is rising causing many harmful side-effects. The aim goal of this study was to determine the frequency of this acts and the most important reason for that along with the most common drugs to this end.

**Materials & Methods:** Present study was done through a cross-sectional method. 120 owner of pets who approached veterinary small animal clinic of Tehran university during 3 months (May to July 2011) had been surveyed. Data had been collected via questionnaires filed in by 120 pet owners. SPSS software was used for statistical analysis of the obtained results.

**Results & Conclusion:** Several questionnaires were distributed between 98 owners of dogs and 22 owners of cats. 28.3% of owners used drugs arbitrarily from which 67.57%, 79.4% and 67.7% were women, young and having academic educations. 70.6% of self medications originated from previous approaching. Diarrhea, fever and depression were the most common cases grabbed with self treat and antibiotics and sedatives were the most common self prescribed drugs. On average, period of curing was 3.4(±2) days. In this study, owners described the reason for self treat lack of time, expensive veterinary services, unavailability of veterinarians. Given the high percentage of self treat, informing the owners about potentials side effects, drug resistance, wasting money and failure to catch result is necessary.

**Keywords:** Self treat Dog, Cat, Tehran, Arbitrary administration of the drug.

### Study on benefits of mycotoxin-chelating agents in prevention of Aflatoxicosis in cattle fed diets containing Aflatoxin in Mazandaran and Semnan Provinces

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**Objectives:** One of most common diseases in most feedlot units is aflatoxin poisoning or aflatoxicosis that causes complications in various organs and debilitation of immune system. Regarding that stale bread are stored under insanitary conditions, this study was carried out for two reasons: 1-The effect of waste bread on animal growth when chelating agents are used. 2- Preventing human health problems and helping for proper animal feeding.

**Materials & Methods:** In this study sectional sampling had been done from several farms in Mazandaran and Semnan provinces. The results were analyzed using SPSS.

**Results & Conclusion:** Presence of aflatoxin such as B1, B2, G1, and G2 was confirmed. Relationship between different types of bread and aflatoxin B1 and B2 was significant but not for G1 and G2 ( $P < 0.05$ ). In farms chelating agents were used (Mycosobe, Toxiband), there was a significant enhance in animal weight. Using waste stale bread accompanied by mycotoxin-chelating agents in diet up to 4% is recommended bearing significant effect on performance improvement. Without hygienic supervision and controls on animal's feed usage of stale bread in animal feed should be avoided.

**Keywords:** Aflatoxicosis, Aflatoxin, Mazandaran, Mycosobe, Waste stale bread.



**Effect of oral administration of ascorbic acid on thyroid hormones changes before and after physical activity among Arab-race horses**

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**Objectives:** This research was aimed to determine the amount of the thyroid hormones changes before and after physical exercise of Arab-race horses after upon feeding with ascorbic acid.

**Materials & Methods:** It was done on a group of twenty Arab-race horses as a control group and an experimental group aging between the of 4-9 and weighting 450-550kg. After general examination of all horses they assigned to treatment and control groups randomly .The experiment group was fed 20gr ascorbic acid every day for thirty days(a month).Two blood samples were taken from jugular vein during the rest and immediately after physical exercise in a race course of about 2160 meters.

**Results & Conclusion:** Analyzing data before and after physical exercise for T3 and T4, showed a significant difference in which after physical exercise, the T3 and T4 levels were increased up to 0.05 in comparison with before exercise. But there was no significant difference between the control and treatment .According to these results, oral administration of ascorbic acid had no effect on the thyroid hormones among Arab-race horses after and before physical exercise.

**Keywords:** Ascorbic Acid, T3, T4, Arab horses.

**Effect of silymarin(*Silybum marianum*) Extract and Aloe-vera Extract on wound healing process in silver carp (*Hypophthalmichthys molitrix*)**

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**Objectives:** Wound healing is the process of repair that occurred following the injuries to the skin and other soft tissues. It is fundamentally a connective tissue response. Initial stages of wound healing involve an acute inflammatory phase followed by synthesis of collagen and other extracellular matrix, which are later remodeled to form scar. Herbal therapy as a natural treatment and alternative therapy for various types of diseases is becoming increasingly popular. Silymarin is an extract of the milk thistle plant that has been shown to have strong antioxidant and anti-inflammatory effects and Aloe-Vera belongs to the family liliaceae.

**Materials & Methods:** Fish were anesthetized using Benzocaine and then 5mm full thickness skin wounds in circular shape created with surgical punch biopsy in left side of each fish. The fish were divided to two groups. Group 1 was divided to three equal subgroups (20 fish in each group).Group 2 was divided to two equal subgroups (20fish in each group).For Group 1, subgroup 1 was received no treatment (control group), subgroup 2 received a short time bathing in 10% Aloe-Vera for 1min and subgroup 3 received a permanent floating in Aloe-Vera extract. For group 2, subgroup 1 was treated by topical application of 50% topical ointment of silymarin.

**Results & Conclusion:** Water temperature was 25° C in all aquariums during the experiment. The results showed that 50% topical ointment of silymarin had no effect on wound healing process. But in Aloe-Vera extract, on the basis of these results it can be concluded that in group 1, subgroup 2, short time bathing with Aloe -Vera had positive effects on wound healing but it seems that permanent floating of fish in Aloe-Vera indirectly has negative effects on wound healing.

**Keywords:** Silymarin, Aloe-Vera, wound healing, silver carp.



### Evaluation of Diazepam (valium), zinc sulfate and Vit-A on skin wound healing in fish

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**Objectives:** Skin reconstruction depends on many factors such as pH and TEMPERATURE of water, diet, stress and also employed drugs. Due to the existence of so many microorganisms in water and over cuticle, skin as the first protector has an important role between fish and its environment and in fish health accordingly. Wound healing is a valuable biological process restoring tissue integrity after injury. The aim of this study was to investigate the effect of Diazepam, Zinc sulfate, Vit-A on wound healing.

**Materials & Methods:** Most effective drugs in this process are Zinc sulfate bath, Vit-A oil and Diazepam. In this study, 30 fish were kept in standard aquarium. Food and water were made available ad libitum and water temperature was kept constant and incision wounds (40mm) were made on the left side of each fish. Diazepam is commonly used for treating anxiety, muscle spasms and induction of amnesia before surgery. Zinc sulfate is used in skin disorders, burnings, scratching and acne and so on. Vit-A is also used in skin reconstruction. Drugs were employed at the same conditions.

**Results & Conclusion:** Zinc sulfate bath at 23ppm concentration showed the best effect. It repaired skin in about 8 days. Diazepam causes skin reconstruction in 30 days. At the end, the least effective drug was VitA oil.

**Keywords:** Diazepam, Zinc sulfate, VitA, wound healing.

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### Evaluation of Anti-inflammatory effects of clove oil in common carp

(*Cyprinus carpio*)

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**Objectives:** Many different chemicals are used as anti-inflammatory agents including glucocorticosteroids, NSAIDs Leukotrienes antagonists, etc .However, and these drugs have a large number of side effects such as significant changes in blood pictures. Thus attempts have been made to find new drugs with minimum side effects .Clove oil is currently used as an anesthetic in fish industry and as a local antitartar agent by dentists. In the present study, the use of clove oil as an anti-inflammatory agent was investigated.

**Materials & Methods:** For this purpose, 20 fish in same age and weight were divided in to two groups randomly. Benzocaine was used as anesthetics and after induction of anesthesia; a 5cm incision was made in the abdominal wall muscle. The muscle and skin were sutured. Fish were divided in to two groups; the first group was received 15mg/kg IV clove oil for 5 days while group two received the same volume of normal saline.

**Results & Conclusion:** The results showed that clove oil reduced inflammatory factors after surgery. This agent can also prevent the changes of blood picture. Histopathological studies showed that in the test group there were less inflammatory cells in the side of surgery compared with the control group. The results from the present study suggested that clove oil can be used as an anti-inflammatory agent in fish.

**Keywords:** Anti-inflammatory, clove oil, common carp.



### Evaluation of *Allium hirtifolium* effects on wound healing in rainbow trout (*Oncorhynchus mykiss*)

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**Objectives:** Fish cutaneous lesions in fish from viral, bacterial, parasitic and mechanical and chemical agents are a very common infection causing rapid mortality in fish. *Allium hirtifolium* (Persian Shallot) belongs to *Allium* genus (*Alliaceae* family) and it is an Iranian traditional native herb which use as a condiment spice. It is well known in Iranian folk medicine and its bulbs have been widely used for treating rheumatic and inflammatory disorders. This study evaluated the influence of *Allium hirtifolium* on the healing process of experimentally wounded rainbow trout after using 5 mg/L every 48 h *Allium hirtifolium*.

**Materials & Methods:** In this study, 90 carp weighted in average 60 to 70 g were randomly allocated into 1- the negative control (n=30), 2- *Allium hirtifolium* treated (n=30) and 3- positive control as phenytoin treated (n=30) groups. They were distributed and spent a week to become compatible with the environment. To ensure the health of fish, the parasites and microbial assay in a number of them were done. To achieve the desired goals during the testing of a particular type of diet for each of the three groups were used. Fish were then experimentally wounded.

**Results & Conclusion:** The results confirmed a significant effect of shallot in the repair of cutaneous lesions in rainbow trout ( $p>0.05$ ). *Allium hirtifolium* can significantly stimulate epithelialization in full thickness wounds.

**Keywords:** *Allium hirtifolium*, wound healing, rainbow trout (*Oncorhynchus mykiss*).

### Comparison of common anti nematodes drugs in canine digestive tract infection

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**Objectives:** Dogs feces are the most important way for worms spread in animals. Most worms can cause zoonotics. This study was done in order to evaluate medical compounds effect on parasite control due to lack of field trial about usual anti helminthic drugs effects and drug resistance in some of the helminthic infections.

**Materials & Methods:** Fecal samples were taken from 250 dogs referred to Tehran University small animal Hospital. Twenty eight of these dogs between 3-4 months old harboring *Toxocara canis* or *Toxacaris leonine* were divided to 7 groups randomly. Mebendazol, Piperazin, Ivermectin, Levamisole, combination of Pyrantel embonate, Febantel and Praziquantel, and Oxibendazole were selected to treat animals. No drug was administrated in control group. In all group fecal samples were taken 10 and 90 days following treatment in order to control the drug effect and re- infection.

**Results & Conclusion:** The result showed that in all groups, anti nematode drugs administration omitted nematodes eggs shedding in feces 10 and 90 days after administration. In control group nematode egg was present in feces on day 7 and 90. All animals in control group remained positive till the end of the trial. Regarding to the effect of all anti nematode drugs which were used in this study, to determine the best drug, some factors such as availability, ease of administration, side effects and marginal safety should be considered. Furthermore considering environmental infection with respect to lack of nematode ova shedding in fecal samples until 90 days it seems that treatment is not needed to repeated in less than 3 months intervals.

**Keywords:** *Toxacara canis*, *Toxacara leonine*, anti nematodes drugs, mebendazol, piperazin





### Usage of garlic in treatment of ring worm

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**Objectives:** The garlic effects on bacteria, virus and fungus have been proven. The garlic is good for baldness too. The main point of this study is using the garlic in baldness treatment caused by dermatophytosis.

**Materials & Methods:** 20 dogs that they were affected with ring worm were selected. For every dog 100 g garlic was employed cut into pieces, diluted with water and mixed until it looks like dough. For 2 weeks this dough was applied on the wounds affected by dermatophytosis three times a day. During this treatment samples were taken every week. After 2 weeks the skin and the hair of the affected dogs were taken.

**Results & Conclusion:** 11 dogs were completely cured and 2 dogs were cured a little (it means their wounds become better but they didn't cure completely) and 2 dogs were remained involved with dermatophytosis with no changes in wounds. Therefore, garlic is a good and effective agent for dermatophytosis wounds on the skin of the animals requiring patience because you have to rub the dough on the wound 3 times a day for 2 weeks.

**Keywords:** Ring worm, garlic, dog.

### Usage of mint for curing flea in dogs

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**Objectives:** Flea belongs to siphonaptera order having no wings and a bloodthirsty creature moving around via jumping. The dogs are affecting with *Ctenocephalides canis* species biting dogs and causing agitation and itching.

**Materials & Methods:** 15 dogs that already affected with this flea were selected. They were chosen from the private clinics in Tehran in 2011. Upon confirmation of the flea infestation by the lab, 200 g of fresh mint was put in boiling water for 30 minutes and the resultant material were applied on the affected parts of the skin, after getting cold, and left the solution to become dry under normal temperature. This practice was done 2 times a day for 14 days.

**Results & Conclusion:** Seven dogs were completely cured showing no flea on their skin. 8 dogs became better but not cured completely. Using this user friendly solution is completely safe with no side effects and helping to cure the flea infection on the skin of the dogs. This is for the first time in the country that using mint for curing flea infection was studied.

**Keywords:** Flea, mint, dog.



### Cardiopulmonary Effects of Verapamil-Ketamine Anesthesia in Dog

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**Objectives:** The aim of this study was to determine the effects Verapamil-Ketamine combination on heart rate, respiratory rate, rectal temperature, arterial blood pressure, blood gases and arterial blood pH in dogs. The experimental study was carried out on five apparently healthy dogs, two females, weighing 15-20 kg and age between 1.5- 2 years old.

**Materials & Methods:** Verapamil (0.3 mg/kg, IV) was injected 10 minutes prior to ketamine administration (25 mg/kg, IV). All arterial blood samples were taken before verapamil administration and were repeated at 5, 15, 30 and 45 minutes intervals after induction of anesthesia with ketamine. Arterial catheters were placed into the left femoral arteries using local anesthesia via a 1-2 cm skin incision for measuring arterial blood pressure and collecting blood samples. The catheters flushed regularly with 2/1000 heparin solution to prevent clot formation.

**Results & Conclusion:** The repeated measure analysis of variance was used for the analysis of the data and P values of less than 0.05 were considered to be statistically significant. Apparently in all animals the anesthesia and recovery were uneventful. The Heart rate increased significantly at all times after anesthesia. PaO<sub>2</sub> and mean arterial blood pressure decreased and PaCO<sub>2</sub> increased significantly at 5 minute and pH values declined at 5 and 15 minutes after anesthesia. Respiratory rate and rectal temperature showed no statistically significant changes. It can be concluded that verapamil – ketamine has no major problem in dog anesthesia and the present study showed all changes were minor and transient. However, before introducing of this anesthetic combination in dogs, performing further researches is recommended.

**Keywords:** Verapamil, Ketamine, Anesthesia, Dog.

### Effect of Strawberry and Green Tea Extracts Inclusion in Semen Extender, on Post Thawed Semen Quality of Sahiwal Bull Semen

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**Objectives:** Sahiwal cattle are famous for heat tolerance and tick resistance. In livestock, artificial insemination (A.I.) is famous to harvest male genetics. For A.I., semen cryopreservation is routine practice. Cryopreservation involves many steps which impair sperm fertility. Metabolites of oxygen produced during preservation, cause cell damage. Oxidative stress is the most deleterious for sperm normality, associated with decreased sperm motility and abnormal morphology. Inclusion of antioxidants, are reported for a protective effect on sperm fertility. Green tea leaves and strawberry fruit are well-known for antioxidants. Present study was conducted to elucidate their significance for semen cryopreservation.

**Materials & Methods:** Ejaculates of three bulls were pooled and extended in lactose-egg yolk glycerol extender. The extended semen was subjected to inclusion of green tea and strawberry extracts. Two levels (0.25%, 0.5%) of green tea and three levels (0.5%, 1% and 2%) of strawberry extracts were evaluated. One control group was also established. After equilibration for two hours at 4°C, the satisfactory semen samples were filled in 0.5 ml straws and cryopreserved in liquid nitrogen. Five straws from each treatment groups were evaluated by monitoring motility, viability and membrane integrity. The experiment was repeated for three times.

**Results & Conclusion:** The results of this study revealed that, post-thawed sperm parameters could be improved by supplementation of semen extenders with strawberry or green tea extracts. Addition of strawberry extract, in semen extender improves post thawed sperm motility, viability and plasma membrane integrity. At 1% inclusion level, the viable and plasma membrane intact sperms were (46.4%, 40.7%) significantly higher than control (38.5%, 33.9%). Further inclusion of strawberry extracts drastically declines the post thawed parameters. At 2% inclusion level, the values for these parameters were 29.6% and 24.7% respectively. This means low concentrations of strawberry extracts have beneficial effect but higher concentration have some toxic effects on sperm survival. Semen extender with inclusion level of 0.25% green tea extracts, also had significantly higher post thawed sperm motility, viability and plasma membrane integrity values (42.6%, 54.1% and 43.3% respectively) than control. It is observed that 0.25% green tea extract inclusion is most effective to improve the post thawed sperm parameters. It is concluded that strawberry or green tea are good sources of natural antioxidants and at SPU's these could be used as cheap sources to improve semen quality.

**Keywords:** Green Tea, Strawberry, Semen Cryopreservation, Post thaw.



### Microbiological Screening for Detection of Antibiotics Residues in Ostrich Meat of Zarandieh Ostrich Complex Farm

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**Objectives:** Antibiotics are products that inhibit the growth of or destroy microorganisms. In veterinary medicine antibiotics are used for therapeutic, prophylactic, metaphylactic and nutritive purposes. The presence of antibiotics or their metabolites in food is hazardous to health. It may cause allergic reactions, antibiotic resistance, or influence starter cultures in food. The most common causes for the presence of antibiotic residues in food of animal origin are violation of withdrawal periods, overdosing of antibiotics and use of antibiotics banned for treatment. The methods used to detect antibiotic residues in food are microbiological, immuno-enzymatic and chemical ones.

**Materials & Methods:** The principle is based on measurement and evaluation of zones of inhibited bacterial growth on media. For this reason *Micrococcus luteus*, *B. subtilis*, *B. cereus* and *E. coli* were selected as the most appropriate sensitive strain for detection of common antibiotics. Basic media for preparation of test plates were Merck agar (1000ml/30,5g/autoclaved at 121°C/15min). 20 ostrich were selected and 20 samples of meat, liver, ventriculus and heart were taken. After the enrichment, microflora was cultured in Test plate and each plate division to 4 zone and 0.1g of samples added in central of each plate.

**Results & Conclusion:** The purpose of our study was to detect of antibiotics residue in ostrich meat samples. The selected microorganisms are the most sensitive strains for detection of common antibiotics such as macrolides,  $\beta$ -lactams, aminoglycosides, tetracyclines and quinolones. The microflora grew in all plates and no zone of inhibited bacterial growth was observed. In this farm, antibiotics are used for prophylactic and treatment reasons in ostriches younger than 3 month but will be slaughtered in 12<sup>th</sup> month and the antibiotics are used just occasionally. This research affirmed that Antibiotics Residues are very low in meat produced at this farm. Observing withdrawal time is very effective to reduce the risk of Antibiotics Residues.

**Keywords:** Antibiotics, Zarandieh, ostrich meat.

### Effect of Estrogen on the Process of Wound Healing in Streptozotocin-induced Diabetic Rabbits

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**Objectives:** Impaired wound healing in diabetic patients is a major clinical problem, which is associated with significant morbidity and mortality. Estrogen has positive effects on neoangiogenesis, re-epithelialization and cell proliferation. In this research, effect of estrogen on wound healing in diabetic rabbits was investigated.

**Materials & Methods:** This study was performed on rabbits (B.W. 1.200 $\pm$ 20 g), which were divided into 2 groups of normal and diabetic rabbits. Each group was divided into 3 subgroups of control, sham and test. A circular full-thickness wound with a diameter of 1.5 cm was created on the back of streptozotocin (stz)-induced diabetic as well as non-diabetic rabbits. Estradiol benzoate (10 $\mu$ g/sc) was daily administered to test subgroups for 28 days, while the sham subgroups received injections of placebo. The control subgroup did not receive anything. Size measurement and pathological evaluation of the wound

**Results & Conclusion:** In the macroscopic study, there was a delay in the wound healing of diabetic group in comparison with normal group. From day 7, wound healing had considerable change in estradiol subgroups in both normal and diabetic rabbits ( $p < 0.05$ ). In the microscopic study, coating tissue reorganization, granulation tissue and neoangiogenesis formation were surveyed as semi-quantitative parameters. In all cases, estradiol receiving subgroups showed impressive improvement compared to the same subgroup. This research finds that estrogen can improve the impaired wound healing of diabetic rats and this effect is related with the rate of wound healing and wound structure.

**Keywords:** Wound healing, estrogen, streptozotocin, diabetic rabbit, pathology.



### Determination of Macroscopic Effect of *Actinidia deliciosa* (Kiwi Fruit) on Wound Healing in Rabbits

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**Objectives:** *Actinidia deliciosa* (kiwi fruit) is used as a meat tenderizer. It acts rapidly and efficiently to soften meat and even to crush it, if it's allowed to work for more than a few hours. Observing this effect and considering the lack of studies about this subject in the literature made the authors to investigate the use of this natural remedy in an animal model.

**Materials & Methods:** 18 rabbits were divided randomly into three groups. Under general anesthesia, a limited standard 3rd degree burn was produced on the back of each rabbit. In treatment group (7 rabbits), the wounds were covered with fresh kiwi fruit. In control groups I (7 rabbits) and II (5 rabbits), the dressing is done with a neutral ointment. Weekly wound observations were documented for all groups. Treatment and control I Groups were excised in full thickness and underwent to microscopic evaluation on the 20th day. The group 3 was kept without any manipulation until complete scab separation.

**Results & Conclusion:** On the day 20th, all scabs had become detached and fallen off in the treatment group, whereas in control groups I and II the scabs were still firmly attached to the base of the wounds (except in two rabbits of control group I). This finding was statistically significant ( $P < 0.001$ ). The average wound surface area in treatment group was  $212.3869 \pm 88.80938$  mm<sup>2</sup>, whereas in the control group I, it was  $388.4749 \pm 140.6967$  mm<sup>2</sup>. Thus, the wound surface area was significantly ( $P < 0.001$ ) smaller in the treatment group. The scabs in the control group II were separated spontaneously between 30th and 42nd days, while in all the rabbits of the kiwi-treated group, this phenomenon occurred before the 20th day. Debridement, re-epithelialization and scar contraction were faster in the kiwi-treated group than in the untreated group. Following rapid enzymatic debridement, healing appeared to progress normally, with no evidence of damage to the adjacent healthy tissue.

**Keywords:** Kiwi Fruit, *Actinidia deliciosa*, Enzymatic Debridement, Wound Healing, Rabbit.

### Effect of Diltiazem on Healing of Traumatic Urethral Inflammation

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**Objectives:** This study was done to investigate the effect of systemic or local administration of diltiazem (a calcium channel blocker), on healing of the traumatic urethral inflammation.

**Materials & Methods:** 15 adult male Wistar rats (230–250 g) were assigned to group1 (n=5) control, group2 (n=5) local application and group3 (n=5) systemic application. In group1, only a urethral injury was achieved at the 12 o'clock position by gently introducing and drawing a tiny hook in the urethra until urethral bleeding occurred. In group2, after the same procedure, 10mg/kg diltiazem was applied retrogradely via a 22-gauge angiocath intraurethrally for 5 consecutive days, while the same amount of the drug was administered intraperitoneally in group3.

**Results & Conclusion:** After 21 days, the rats were sacrificed for urethrectomy purpose. Pathologically, the thickness of connective tissue, the regularity of the epithelial lining, the presence of the inflammation and the density of collagen were evaluated with Masson's trichrome staining. The Mann-Whitney test was used for statistical analyses. The mean connective tissue thickness was ( $0.77 \pm 0.39$ ), ( $1.01 \pm 0.77$ ) and ( $0.93 \pm 0.53$ )  $\mu$ m in groups 1, 2 and 3, respectively. Therefore, the differences between the groups were insignificant ( $p > 0.05$ ). The hyperplastic epithelial lining in the study groups, with both systemic and local applications, was markedly infrequent and the inflammation was less prominent. However, these differences did not reach statistical significance. Diltiazem appears not to have any preventive effect on connective tissue formation when applied locally or systemically in our urethral injury model.

**Keywords:** Diltiazem, Urethral inflammation, Calcium channel blocker, Healing, Masson's trichrome.



### Effect of Cobalt Nano particles on serum biochemical factors changes in sheep

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**Objectives:** Importance and application of nano-particles are increasing and their toxicological effects are indispensable. Cobalt is essential co-factors in red blood cell (RBC) production and function. Thus, the present study was designed to evaluate effect of cobalt nano-particles on serum biochemical factors changes in sheep.

**Materials & Methods:** One group of sheep (4 sheep each group) was received cobalt nano-particles suspension daily for 25 days. Another group of sheep was received conventional cobalt chloride (as control group). Before and every 5 days blood and then serum were collected from sheep. Activity of ALT and AST, ALK, LDH, level of BUN and creatinine was measured in serum of sheep.

**Results & Conclusion:** Activity of ALT was significantly decreased and creatinine level was significantly increased by cobalt nano-particles. While, all measured factors were not changed by conventional cobalt chloride. Thus, cobalt nano-particles may be safe for use in sheep in cobalt deficiency cases.

**Keywords:** Cobalt nano-particles, Hepatotoxicity, Renal toxicity, sheep.

### Ivermectin effect on *Parafilaria bovicola* (Nematoda: Filaroidea)

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**Objectives:** *Parafilaria (P.) bovicola* occurs in most parts of the world and is of some economic importance in cattle industry due to reduced leather and meat quality. *P. bovicola* causes haemorrhagic bovine filariosis. Clinical signs are restricted to the presence of bleeding points. The parasite induces nodules in the subcutaneous tissue which spontaneously open and release serohaemorrhagic exudates. This paper describes the significant effect of Ivermectin on *P. bovicola* on cow from Iran.

**Materials & Methods:** a Black cow was referred to clinic on 27 may 2011. The cow was born on 22 February 2009 and originated from Ahvaz and housed in a stable with other cattle. This cow showed nodules of 7–10 mm diameter in the neck, shoulder and back regions. The nodules opened spontaneously and produced hemorrhagic exudates. There was a clear suspicion of parafilariosis. Treatment of the cow with Ivermectine was advised and given with injectable ivermectin (0.2 mg/kg) which stopped the bleeding.

**Results & Conclusion:** In spite of treatment of parafilariosis with broad-spectrum anthelmintics is not easy but treatment of parafilariosis with injectable Ivermectin gave good results.

**Keywords:** Parafilariosis, Ivermectine, hemorrhagic exudates.



### Evaluation of nano silver effect on epididimal sperm quality and testis histopathological changes in rat

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**Objectives:** Nanoparticles of silver have been used in a wide variety of applications. However, the effect and interaction of these particles with cells and organs are still unclear. In contrast to many efforts aimed at exploiting desirable properties of nanosilvers for medicine, there are limited attempts to evaluate potentially undesirable effects of these particles when administered intentionally for medical purposes. Therefore, the present study was carried out to evaluate the effects of nanosilver on epididymal sperm quality and testis histopathological changes.

**Materials & Methods:** For this purpose, 24 Wistar male rats were randomly divided in four equal groups. In group one, nanosilver was given orally for 45 consecutive days at the dose of 1 ppm. 10 ppm nanosilver was given orally to rats in group two for 45 days. Rats in group three received 20 ppm nanosilver in the same way and time. Rats in group four were considered as control group.

**Results & Conclusion:** Following administration of nanosilver, histopathological results showed atrophy and necrosis of seminiferous tubules as well as internal and external edema and degeneration of cell lines in these tubules. In the study of sperm motility and motion parameters, using CASA system, there were no significant changes in sperm motion parameters. There was a significant difference in sperm viability between groups received 10 and 20 ppm nanosilver with control group ( $p < 0.05$ ). Furthermore, There was a significant difference in sperm viability between groups received 10 and 20 ppm nanosilver with group received 1 ppm nanosilver particles ( $p < 0.05$ ). Based on the present study, it can be concluded that nanoparticles of silver can cause histopathological changes in testes and increase the percentage of death sperm in epididymis.

**Keywords:** Sperm, testis, histopathology, rat, nanosilver.

### Evaluation of Allium hirtifolium effects on wound healing In rainbow trout ( oncorhynchus mykiss )

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**Objectives:** Cutaneous lesions in fish from the agents of viral, bacterial, parasitic, and mechanical and chemical agents is a very common infection that causes rapid and mortality in fish. Allium hirtifolium (Persian Shallot) belongs to Allium genus (Alliaceae family) and it is an Iranian traditional native herb which use as a condiment spice. It is well known in Iranian folk medicine and its bulbs have been widely used for treating rheumatic and inflammatory disorders. This study evaluated the influence of Allium hirtifolium on the healing process of experimentally wounded rainbow trout after using 5 mg/L every 48 h Allium hirtifolium.

**Materials & Methods:** In this study, 90 carp weighted average number of 60 to 70 grams, were randomly allocated into 1- the negative control (n=30), 2- Allium hirtifolium treated (n=30) and 3- positive control as phenytoin treated (n=30) groups. They were distributed and spent a week to become compatible with the environment. To ensure the health of fish parasites and microbial assay in a number of them were done. To achieve the desired goals during the testing of a particular type of diet for each of the three groups were used. Fish were then experimentally wounded. Three duplicate treatment groups.

**Results & Conclusion:** The results confirmed a significant effect of shallot in the repair of cutaneous lesions in rainbow trout ( $p > 0.05$ ). Allium hirtifolium can significantly stimulate epithelialization in full thickness wounds.

**Keywords:** Allium hirtifolium, wound healing, rainbow trout ( oncorhynchus mykiss)



**Study of therapeutic dose of melatonin on expression of neuronal nitric oxide synthases, superoxide dismutase, gonadotropin release hormone, glutathion peroxidase and Type 2 iodothyronine deiodinase mRNA level in diabetic rats**

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**Objectives:** The expression of nNOS (Nitric Oxide Synthase), SOD1 (superoxide dismutase1), GnRH (Gonadotropin release hormone), GPX (Glutathion peroxidase) and DiO2 (Type 2 iodothyronine deiodinase) in the brain of rats was studied after Streptozotocin-induced (STZ) diabetes and melatonin treatment.

**Materials & Methods:** The rats were divided into two groups of control and tests (n = 8). The test groups subdivided into three groups as follow: T1: rats were injected with STZ at (50 mg/kg b.w.) and were treated with normal saline and ethanol; T2: rats injected with STZ at 50 mg/kg b.w. and received intraperitoneally melatonin (10 mg/kg b.w./day) and T3: rats intraperitoneally received melatonin (10 mg/kg bw/day). The control group received no treatment for 21 days and was injected with normal saline and ethanol as solvent of test compound. Expression of

**Results & Conclusion:** STZ-induced diabetic rats showed upregulation of all examined genes. The melatonin treatment could diminish the effect of STZ-induced diabetes in terms of gene expression. The reductive effect of melatonin was more substantial on GnRH& DiO2 expression in the brain, since the genes expression has dropped to lower than the control rats. Melatonin administration alone lowered SOD1, nNOS, GnRH and DiO2 gene expression. The data suggested that melatonin may be used as a remedy in a combination with other directly effective medicines on diabetes to reduce the diabetes-induced detrimental alterations.

**Keywords:** Brain, Diabetes, Gene Expression, Melatonin.

**Effects of Electrolytes imbalance on immunity against Newcastle Disease Virus Infection**

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**Objectives:** Sodium (Na) and chloride (Cl) function with phosphate and bicarbonate to maintain optimum pH of the body. The minimum level of Na in poultry rations is 0.15%. Low Na level affect ration consumption, while high level has laxative effect. The recognition of Na towards causing edema has shown the importance of balance of electrolytes in the body. Taking in consideration the importance of sodium salts in broiler ration, project was designed to observe the effect of excessive dietary sodium salts on weight gain, FCR, serum sodium concentration, edematous lesions and on the immune status of the broiler against NDV.

**Materials & Methods:** 100 broiler chicks were divided into 4 groups. Group A, B, C and D were fed on diet with 0.36% NaCl, 0.36% sodium bicarbonate, 0.18% NaCl and 0.18% sodium bicarbonate and 0.18% sodium salts (routine) respectively. On day 8 and 28 ND vaccine was administered to all groups. All the birds were weekly weighed to calculate FCR. Blood samples were collected on days 14, 28 and 42 day age to determine the antibody titer against ND virus through Haemagglutination Inhibition (HI) Test and for the estimation of serum sodium concentration through spectrophotometry

**Results & Conclusion:** Results showed that birds of group A had better feed conversion ratio and weight gain as compared to the birds of group B, C and D, whereas birds of group D had poor FCR as compared to the birds of group B and C. On analysis of serum sodium concentration by spectrophotometer, the birds of group A had maximum sodium concentration and birds of group D had lowest serum sodium concentration. Statistical analysis showed a significant difference in the serum sodium levels of all groups except within group B and C. The highest GMHI titer against ND virus was observed in sera of birds of group D and the lowest in the sera of birds from group A. No edematous lesions were observed in birds of any group.

**Keywords:** Sodium, chloride, Newcastle disease, sodium salts, feed.



**Antimicrobial resistance patterns of *Escherichia coli* isolated from domestic ruminants**

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**Objectives:** Ruminants are the biggest sources of food production. Long term administration of antibiotics with little therapeutic benefits results in development of resistant bacteria which pose an important problem for public health as it can lead to spread and increase of problems in the treatment of subsequent animal and human infections. Emerging resistance in these pathogens is mainly because of increasing usage of antimicrobial agents in clinics and slaughterhouses and this is becoming a global problem. In the present study, *Escherichia coli* strains isolated from domestic animals were tested for their antimicrobial resistance patterns by disc diffusion method.

**Materials & Methods:** A total number of 150 samples of different sources (industrial slaughterhouse and farms) including cattle (70), sheep (30), goats (25) and buffalo (15) were taken from rectum, gall bladder, intestinal tissue, intestine contents and cultured on routine bacterial media for isolation of *Escherichia coli*. After culture, isolation and characterization in routine culture media, antimicrobial resistance pattern of *Escherichia coli* isolate was determined using disc diffusion method of Kirby-Bauer. The antimicrobial agents included chloramphenicol, cloxacilin, oxytetracycline, ciprofloxacin, gentamycin, erythromycin, ceftriaxone and colistin. The results were recorded as resistant, intermediate and sensitive according to standard tables.

**Results & Conclusion:** From all tested antimicrobial agents, colistin, cloxacilin and erythromycin could not make any inhibition zone and all strains were found resistant to them. A high number of strains were sensitive to chloramphenicol (64%) and ciprofloxacin (64%).

**Keywords:** Ruminants, drug resistance, *Escherichia coli*.

**Effect of Temperature, pH, Sodium Chloride and Antibiotic on Growth of *Saprolegnia* sp. and *Achlya* sp.**

**Isolated from Infected Common Carp (*Cyprinus carpio* L.)**

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**Objectives:** *Saprolegnia* sp. and *Achlya* sp. were isolated from infected Common Carp (*Cyprinus carpio*). Effect of Temperature, pH, Sodium Chloride and Antibiotic on the mycelial growth of *Saprolegnia* sp. and *Achlya* sp. were studied.

**Materials & Methods:** The optimum temperatures for mycelia' growth of *Saprolegnia* sp. and *Achlya* sp. were 25° C and 25-30° C respectively. The optimum pH for mycelial growth was 7-9 in *Saprolegnia* sp. and 6-8 in *Achlya* sp. While, the growability of fungi in GY agar contained of Sodium Chloride showed that *Saprolegnia* sp. was able to tolerate up to 30-35 ppt but *Achlya* sp. exhibited growth and tolerate up to 10-15 ppt. Sensitivity and survival rates were determined for antibiotics and out of the 14 antibiotics tested only Nalidixic exerted a significant growth inhibiting effect.

**Results & Conclusion:** From this study it can be suggested that effect of Temperature, pH, Sodium Chloride and Antibiotic on the growth of fungi were different in *Saprolegnia* sp. and *Achlya* sp.

**Keywords:** *Saprolegnia* sp., *Achlya* sp., Sodium Chloride, Common Carp (*Cyprinus carpio*), Nalidixic exerted.





**Comparison between serum concentration changes of BUN and Creatinine during gentamycin and gentamycin + Enrofloxacin administration in goat kids**

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**Objectives:** The present study was conducted on 14 goat kids to determine the effect of gentamycin alone and in combination with enrofloxacin on renal function test. The blood samples were collected in 3 consecutive days and basal levels of BUN and Creatinine were determined.

**Materials & Methods:** Animals were assigned in two groups (1 and 2) randomly. Gentamycin (8 mg/kg B.W., IV) and gentamycin (8 mg/kg B.W., IV) in combination with enrofloxacin (5 mg/kg B.W., SC) were administered for 5 consecutive days to group 1 and 2 respectively and blood samples were collected at days 5, 6, 7 and 8.

**Results & Conclusion:** Results showed that in group 1, creatinine concentration was decreased significantly at day 7 compared with days 5 and 6 (P value = 0.018 and 0.021, respectively). Conversely, in group 2 creatinine concentration increased significantly at day 8 compared with the basal level and day 5 respectively (P value = 0.03 and 0.024, respectively). In conclusion, authors suggest that combination of gentamycin and enrofloxacin in kids may alter the health of animals.

**Keywords:** Goat, Blood biochemistry, Gentamycin, Enrofloxacin, BUN, Creatinine.

**Toxicologic Pathological Levozan in White BALB/C Mice at Basrah city Southern Iraq**

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**Objectives:** Levozan is one of the most widely used Anthelmintic for sheep, Goat, Cattle. However, it has many side effects when used in high and chronic dose.

**Materials & Methods:** The study was done on (8) weeks old mice for ten weeks in three groups as: untreated ( control), intermediate dose ( 0.12 ml/kg./b. w. ) and high dose ( 0.24 ml/kg./b. w. ) treated daily with levozan ( a drug used for treatment of parasites in sheep and goats) as sub chronic toxicity study.

**Results & Conclusion:** The results revealed no change in body weight, significant decrease in hemoglobin, and PCV in Levozan treated groups, when compared with control. The Levozan treated groups, also showed a significant increase in the levels of liver enzymes (ALT, AST, and ALP) as compared with control group. Some animals died during the experiment, in the beginning of dosing some animals appeared weak with poor condition but later settled down. At the end of the experiment, animals were anesthetized by ether, then postmortem examination was done and samples were taken from visceral organs including; liver, kidney, lung, heart, brain, spinal cord, sciatic nerve and testes were fixed in 10% neutral buffered formalin and histopathology was done. Treatment – related changes were seen, as follows: In heart a vacillation of myocardial muscles cells with edema, other with area of myocardiatis associated with mononuclear cells and vacillation. Some showed marked vacillation of myocardial muscles cells with infiltrating adipose tissue in the myocardium and pericardial fibrosis with inflammatory cells. In liver, diffuse vacillation of hepatocytes associated with periportal fibrosis and barnachymal foci of mononuclear cells. Furthermore, the kidneys showed a per capsular fibrosis and inflammatory cells mostly polymorphs, also, sub capsular dilation of cortical tubules.

**Keywords:** Levozan, vacillation, liver enzymes, spinal cord, sciatic nerve.



### Toxicologic Pathological of Piperazine Hydrate in Male Wild Pigeon at Basrah city Southern Iraq

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**Objectives:** A three months toxicologic pathology study of piperazine hydrate in male wild pigeons by oral intubation was done.

**Materials & Methods:** The study was done at three dosage levels as low ( 0.25 ml.), intermediate ( 0.50 ml.) and high (1 ml.) with untreated control as fourth group. Clinical observation of treated pigeons did not show significant changes only the birds appeared to the quite after dosing for short time. Macroscopically no obvious changes could be detected. Microscopically, minimal diffuse vacuolation of hepatocytes and varying number of parenchymal foci of inflammatory cells, mostly mononuclear cells. In treated birds a renal lesions were characterized by dilated cortical tubules mostly the proximal convoluted tubules with different levels.

**Results & Conclusion:** Heart showed foci/areas of infiltrating mononuclear cells between myocardial muscle cells with occasional vacuolated myocardial muscles cells. The pancreas shows histopathological changes which were restricted to endocrine islets of langerhans, which showed evidence of degeneration characterized by vacuolation. The nervous system, there was no histopathological changes could be seen in cerebrum, but, vacuolation of perking cells was noticed in cerebellum in some of treated birds, while, the most significant histopathological changes were in spinal cord as varying numbers of degenerate/ vacuolated nerve fibers at all dosage levels but most severe at high dose levels, the other changes but to less extents were in sciatic nerve as there were only few to occasional with degenerate/vacuolated nerve fibers with less severity as they were on the way of recovery.

**Keywords:** Toxicologic pathology, piperazine, wild pigeons, inflammatory cells, vacuolation.

### Effect of thyme extract on Escherichia coli intestinal microbial load hematological factors and performance of broiler chickens

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**Objectives:** Recently, uses of alternative strategies to prevent an imbalance in the intestinal microbial population (IMP) and the potential development of intestinal disorders in livestock, developed. Thyme extract have been known to exhibit antimicrobial activity against specific microbial species and could therefore be considered an alternative in controlling the IMP. This study was conducted to determine the effect of the addition of different levels of thyme, added to drinking water, on the gastrointestinal tract, Body weight gain (BW), feed conversion ratio (FCR), feed intake and mortality rate. Total bacterial count, of E.coli bacteria was determined in different region of intestine.

**Materials & Methods:** Two hundred and forty, day-old broiler chicks (Ross-308) were divided into four equal groups (each group include 3 repetition). Experiment was as follow; A control group with no thyme and in other two groups, thyme extract was used 500 ppm and 1000 ppm and in last group feed was pellet and thyme was not used. Experiments were carried out for 42 days and thyme extract was used from day 7 to 42.

**Results & Conclusion:** Results showed that chicks fed with 1000 ppm thyme extract had significantly lower ( $p<0.05$ ) feed intake, feed conversion ratio, and mortality rate followed by chicks fed with 500 ppm thyme extract and pellet group compared with control group, which showed the lowest performance. The chicks fed with 500 and 1000 ppm thyme extract had reduced ( $p<0.05$ ) total bacteria count (TBC) and in pellet group TBC was highest. The highest BW was in pellet and 1000 ppm thyme group that was significantly different ( $p<0.05$ ) from two other groups. Moreover, the chicks that get 1000 ppm thyme in drinking water had increased ( $p<0.05$ ) lymphocyte to heterophils ratio, this results showed that, increase of TBC in other groups cause increase in heterophil numbers and due to that the lymphocyte to heterophil ratio decreased in three other groups and the highest decrease was in pellet group which because of bacterial growth stress in that group. In conclusion, thyme extract could be considered as a potential natural growth promoter and have the advantage of inhibiting the growth of potential pathogens for poultry at the level of 1000 ppm.

**Keywords:** Thyme extract, E.coli, Broiler, Performance, Hematological factors



### Evaluation of antioxidant effects of crocin on streptozocin-induced diabetes mellitus in rats

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**Objectives:** In this study, the effects of chronic intraperitoneal injections of crocin and subcutaneous injection of insulin in separate and combined treatments were investigated on antioxidant enzymes in diabetic rats at 20 and 40 days after induction of diabetes. Diabetes was induced by intraperitoneal injections of STZ (42 mg/kg) solved in citrate buffer (pH4.5) and was confirmed with the measurement of glucose concentration in third days after STZ injection. Chronic intraperitoneal injections of crocin (10 and 40 mg/kg) and insulin (5U/kg) in separate and combined treatments were performed from third day after STZ injection (40 days).

**Materials & Methods:** Crocin powder, Streptosotozin (STZ), Insulin, Normal saline, Citrate buffer (pH 4.5), male rats. First group contained 9 subgroups, Euthanasia 20 days after diabetes induction. Secound category contains 9 subgroups, Euthanasia 40 days after STZ injection. Hemoglobin and Glucose measurement. In 3rd days after STZ injection glucose determined with Glucometer Hemoglobin was measured by Ziestchem Diagnostic kit and cyanmethemoglobin method, colorimetric. SOD, GPX, CAT activities and Total antioxidation Capacity and MDA were assayed too. The results were analyzed using normal test, One Way ANOVA, LSD test, in SPSS software media version 19 and P value was Significant.

**Results & Conclusion:** The results suggested that crocin and insulin alone have antioxidant effects and crocin exerts a synergistic effect with insulin in prevention of the decreased antioxidant enzyme activities. It seems that crocin acts better than insulin in protecting the animals from diabetes. In present study, effect of Crocin in inducted diabetes by STZ for detect its antioxidant property, was surveyed. It was found that Crocin can prevent reduction of antioxidant level and oxidative indicator; these effects are comparable with insulin effects.

**Keywords:** Crocin, Insulin, STZ, diabetes, rats.

### Study of effect of two famous members of Liliacea family on some opportunistic infection agents

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**Objectives:** Garlic (*Allium satium*) and onion (*Allium cepa*) from Liliacea family are counted as medical plants. They have antipathogene effect because of their sulfur compounds and volatile acid. In this study the effect of the above plants on six opportunistic fungi and bacteria was examined. Bacteria included *Eschershia coli*, *kelebsiella pnemonia* and *Pseudomonas aeroginosa* and fungi included *Candida albicans*, *Mucor circinelloides* and *Aspergilos niger*. All microorganisms were provided from microbiology and mycology laboratory of Azad University of Kazerun department of microbiology.

**Materials & Methods:** Normal saline, aquapura, filter paper, pipet, shaver, plate, swab, incubator, sampler, test tube, Fungal medium: Sabourauds dextrose agar and sabourauds dextrose broth (Merk, Germany) Bacterial medium: Mullerhinton agar and Mullerhinton broth (Merk, Germany) Methods: The extracts of fresh plants were prepared under a sterile condition by mincing. Then the sensitivity of fungal and bacterial agents was determined using disk plate method. Next the positive results were recorded to determinate MIC (minimum inhibition concentration) by tube dilution method. At the end MFC was determined by transfer of a drop of positive test tubes to the medium.

**Results & Conclusion:** All of bacterial and fungal pathogens showed sensitivity to garlic extract except *Pseudomonace* and the range of bacteriostatic zone varied from 7 to 9mm and for fungi were from 11 to 14mm but just *Aspergilous* showed sensitivity to the onion extract by 9mm inhibitory zone. MIC of garlic extract for bacteria ranged between 1/1 to 1/8 and 1/64 to 1/128 for fungi. MIC of extract of onion was 1/8 for *Aspergilous*. None of the raw extracts showed bactericidal or fungicidal property.

**Keywords:** Liliacea family Garlic, onion, *Eschershia coli*, *Kelebsiella pneumonia*, *Pseudomonas aeroginosa*, *Candida albicans*, *Mucor circinelloides*, *Aspergilos niger*.



### Pattern of drug administration for large animals at Mazandaran province, northern Iran

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**Objectives:** There are several reasons for unsuccessful treatments of animal disease. Problems and mistakes in the prescription writing by Veterinarians are among the important factors in this regard. Prescription writing has principles and rules and omitting them is called "prescription errors".

**Materials & Methods:** Use of veterinary medications and prescription writing in 4 selected regions of Mazandaran province, north of Iran including Amol, Babol, Sari and Ghaemshahr from March 2008 to February 2009 (12 months) were recorded using data collecting sheets. Totally 600 prescriptions were evaluated.

**Results & Conclusion:** The Mean $\pm$ SD of dosage forms per prescription in 4 regions was 2.93 $\pm$ 1.076. Except in Ghaemshahr, the quality of prescriptions was acceptable. Supportive treatments were more than other form of therapies. Sari was the 1st among the regions in the use of chemotherapeutic agents (antimicrobials, antiparasitics, etc) while Babol, Ghaemshahr and Amol stood on the 2nd to 4th ranks respectively. It seemed that Sheep were suffered more than the cattle from infectious diseases. Adult livestock showed less infectious diseases compared to young animals, which suffered from bacterial infections more than other types of infections. Out of different injection methods, intramuscular (IM) (72.5%) and intravenous (IV) (1.4%) injections were applied most and least, respectively. The Mean $\pm$ SD of duration of therapy was 3.11 $\pm$ 3.105 days. The highest and lowest numbers of prescriptions were issued in the fall (41.9%) and spring (9.6%) respectively. In Amol and Babol regions, some of veterinarians prescribed chemotherapeutic agents in all cases of pharmacotherapy. More knowledge over practical pharmacology and prescription writing, in theoretical and practical terms, are needed for the students of veterinary medicine. In addition, executive organizations are advised to monitor the prescriptions issued by veterinarians.

**Keywords:** Pharmacoepidemiology, prescription, Mazandaran, drug.

### Comparison between subcutaneous and intrauterine administration of Ceftiofur for treatment of endometritis in dairy cows

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**Objectives:** Endometritis is one of the most important reproductive diseases in dairy cows. Endometritis is inflammation of the endometrial lining of the uterus and is associated with delayed uterine involution, decreased conception rates and increased culling rates. Numerous treatment approaches have been used for endometritis. Today, Ceftiofur (a broad-spectrum third-generation cephalosporin), with high efficacy and minimum residue in milk and meat, is suggested treatment for acute metritis and endometritis. The objective of this study was to compare between subcutaneous and intrauterine administration of Ceftiofur for treatment of 2nd and 3rd degree of endometritis one month postpartum.

**Materials & Methods:** In the present study, cows were clinically examined for reproductive diseases four weeks postpartum (clean test). Diagnosis of endometritis was confirmed with vaginoscopy and ultrasonography. Then, cows with 2nd and 3rd degrees of endometritis were randomly were assigned to two treatment groups. First group (n=29) was treated with 1.1 mg/kg ceftiofur hydrochloride (S.C.) for 3 consecutive days. Second group (n=17) was treated with 1 g/cow ceftiofur hydrochloride (I.U.). The third group (n=46) was considered as control group that have no clinical signs of endometritis.

**Results & Conclusion:** In the present study, all groups had almost same BCS, milk yield and lactation. Reproductive indices were used for comparing S.C. and I.U. ceftiofur treatment methods and control group. Days to first service in three study groups were (91.55 $\pm$ 9.41), (84.76 $\pm$ 9.52), and (65.67 $\pm$ 9.31) respectively. Calving to conception interval were (162.28  $\pm$  20.64), (135  $\pm$  15.51), (123.92  $\pm$  14.50) respectively. Calving interval were (441.66  $\pm$  20.29), (414.81  $\pm$  15.38), (403.64  $\pm$  15.30) respectively. Conception rate after 150 days postpartum were 58.6%, 75%, 75% respectively. Sum of First and second service conception rate were 68.9%, 75%, 66% respectively. Numbers of service per conception were 2.28, 2.19, and 2.64 respectively. All of these figures showed that no significant differences between the treatment groups existed (P>0.05), but intrauterine treatment had better performance and reproductive indices than subcutaneous in treatment of endometritis.

**Keywords:** Dairy Cow , Endometritis , Cephalosporin , Ceftiofur , subcutaneous , intrauterine.



### Histopathological and serological study on effects of bee balm in liver of Raeini's goat.

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**Objectives:** Pennyroyal is a perennial herb that grows up to 50cm (20 in) tall with smooth roundish stalks and aromatic, gray-green oval leaves. Pennyroyal oil is extracted from the fresh herb or slightly dried herb via steam distillation. Pennyroyal oil is extracted from *Mentha pulegium* of the Lamiaceae (Labiatae) family and is also known as Pulegium, European pennyroyal and pudding grass. Pennyroyal oil is toxic and an abortifacient and can even in small quantities cause acute liver and lung damage. The main chemical components of pennyroyal oil are pulegone, menthone, isomenthone and neomenthone.

**Materials & Methods:** In this survey, toxic effects of high dosages of this oil in the liver of Raeini's goat were evaluated. For this purpose 8 male Raeini's goat were selected and received 5cc extract oil orally for 7 days on daily basis.

**Results & Conclusion:** After 7 days bleeding and scarifying was done. Hepatic damage and necrosis increase of GPT enzyme in plasma and decrease of hepatic glutathione was observed. But in lower dosages, only mild congestion in the liver was observed.

**Keywords:** Pennyroyal, toxic, Raeini's goat, liver, Kerman.

### Evaluating adverse effects of flunixin, ketoprofen and phenylbutazone administered IV to clinically normal miniature donkeys

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**Objectives:** To evaluate the adverse effects of flunixin, ketoprofen and phenylbutazone when administered I/V to clinically normal miniature donkeys.

**Materials & Methods:** Twenty clinically normal adult (2.0 –2.5 years old) male miniature donkeys weighing 113–136 kg and 0.81–0.86 m tall were randomly assigned to one of four groups, and administered either saline (n=5), 1.0 mg/kg flunixin (n=5), 2.2mg/kg ketoprofen (n=5), or 4.4 mg/kg phenylbutazone (n=5) I/V at 08 hours on Day 1, then every 12 h, for 12 days. The animals were observed every 8 h, and examined physically daily. Blood, faeces and urine samples were collected daily from all donkeys, for haematological indices.

**Results & Conclusion:** Clinically, mild anorexia and diarrhea were observed during the study only in donkeys treated with phenylbutazone. There was an effect of treatment with the non-steroidal anti-inflammatory drugs (NSAID) on red blood cell (RBC) counts, packed cell volume (PCV) and enzyme activities, but not on urine. Lesions were observed in the glandular mucosa of the stomach of all donkeys treated with NSAID, including ulceration in most. Also, in donkeys treated with NSAID, hyperemia, erosion and ulceration of the gastrointestinal tract and congestion of the liver, kidney and spleen, were observed. Microscopically, hepatic and renal lesions comprised biliary hyperplasia and interstitial nephritis, respectively. The gastrointestinal, hepatic and renal lesions observed in the donkeys treated with NSAID demonstrated the toxic potential of NSAID, which was greatest for animals treated with phenylbutazone, less for flunixin, and least for ketoprofen. When use of these compounds is contemplated in clinical cases, the risk of adverse effects and the comparative toxic potential should be considered, together with the efficacy of the compound for the condition being treated.

**Keywords:** Phenylbutazone, flunixin meglumine, ketoprofen, donkey, adverse, effects.



### Aspergillus Chemregulation by Natural Herbal Extract and Essence Influencing 14 Species of Northern Iran Isolates

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**Objectives:** The naturally occurring toxins mentioned for Aspergilli are the most toxic carcinogenic secondary metabolites and mycotoxicosis causative agents. Therefore, molecular methods in combination with certain environmental techniques can possibly be used for the molecular eradication of Aspergillus and its metabolites in an efficient way. It is crucial to combat toxigen populations through high performance inspection in relatively rapid and highly sensitive ways reducing or suppressing the toxin productions.

**Materials & Methods:** More than 100 isolates obtained from northern provinces of Iran using Braned rice, Corn meal, Groundnut meal and Olive oil on 14 distinctive species using ELISA immunoassays in a double blind investigation on whole matrix medium extracts of 10 days old culture substrate debris.

**Results & Conclusion:** Likewise the others studies, the aflatoxin-producing (47 samples, more than 30IU) from the non-aflatoxigenic through the same process (43 samples, under 5-10IU) and even some strain as "fast" (41 samples, more than 30IU) or "slow" aflatoxin accumulators (16 samples, under 30IU) which could effectively influenced definitively by above herbal extracts on which consider these as 'gold standard' with reliable specificity and sensitivity regarding to FAO/U.S regulation and safe level of 20µg/kg were discriminated. It is suggested to investigate more efficient ways on the matter of Aflatoxin contamination of crops and food products in the targeted area.

**Keywords:** Aflatoxin, Aspergillus, Iran, Molecular influences.

### Evaluation of thymus essential oils deriving from three species on *E.coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Candida albicans* and comparing antimicrobial effects with Ampicillin and gentamicin

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**Objectives:** Thymus used as a medicinal plant from 16<sup>th</sup> century. Thymus contains phenol, thymol and carvacrol. Essential oil of thymus is yellow or purple liquid with pleasant smell and hot taste. In this study antimicrobial property on *E.coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Candida albicans* was studied.

**Materials & methods:** To compare thymus antimicrobial agents with antibiotics, after preparing essential oil of thymus disk diffusion method was employed to compare result of antibiogram. The disks of antibiogram were put on culture media and incubated in 24 hours at 37°C.

**Results and Conclusions:** This study showed that Inhibitory Zone for essential oil of *Thymus transcaspicus* for *E.coli*, *Pseudomonas aeruginosa*, *staphylococcus aureus* and *Candida albicans* were 17, 24, 10, and 26 mm respectively. For *Thymus daenesis* reached to 24, 31, 20 and 34 for *E.coli*, *Pseudomonas aeruginosa*, *staphylococcus aureus* and *Candida albicans* respectively. For *Thymus kotschyanus* reached to 38, 0, 32 and 22 mm for *E.coli*, *Pseudomonas aeruginosa*, *staphylococcus aureus* and *Candida albicans* respectively. Concerning Ampicillin reached to 18, 29 and 0 mm for *E.coli*, *Pseudomonas aeruginosa* and *Staphylococcus aureus* respectively. Concerning Gentamicin reached to 21, 18 and 16 mm for *E.coli*, *Pseudomonas aeruginosa* and *Staphylococcus aureus* respectively. These essential oils had good antibacterial effect on *E.coli*, *Staphylococcus aureus* and *Candida albicans*, but had no proper effect on the *Pseudomonas aeruginosa*.

**Keyword:** Thymus, Antibacterial activity, disk diffusion.



### Investigation of Analgesic and Antiinflammatory Effects of *Malva Neglecta* Hydroalcoholic Extract.

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**Objectives:** *Malva Neglecta* is a small weedy plant of yards and roadsides. In traditional medicine it is known for temperament balancing and has many other medicinal effects.

**Materials & Methods:** For this purpose, male mice (28-32gr) and Wister rat (160-200gr) were used. Hydroalcoholic extract was prepared. The acetic acid-induced writhing response and Formalin – induced paw licking time were used in mice to assess the analgesic activity. For evaluating of Anti-inflammatory effect, Carrageenan induced rat paw edema was used. Indomethacin and Morphine were selected as reference drugs. The extract was administered IP.

**Results & Conclusion:** The extract at doses of 75-300 mg reduced acetic acid induced abdominal constrictions. In a dose dependent manner also the same doses significantly attenuated the pain response of the second phase of formalin test and also significantly ( $P<0.01$ ) reduced carrageenan induced paw edema. These results showed the analgesic and anti-inflammatory effects of the *M. Neglecta* extract, and investigation for substituting herbal drugs instead of chemical drugs is advantageous.

**Keywords:** *Malva Neglecta*, analgesic, anti-inflammatory.

### Histopathological Evaluation of Protective Effect of *Cichorium Intybus* on Acetaminophen Induced Hepatotoxicity in Broilers

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**Objectives:** *Cichorium Intybus* (C.I) in traditional medicine was used for many purposes and have a protective effect in liver and oxidative lesions of hepatic cells. This experiment was conducted to investigate the effect of C.I water extract in Hepatotoxicity of Acetaminophen in Ross broilers.

**Materials & Methods:** For this purpose 144 male broiler chicks, completely randomized were divided to 6 groups, with 2 replicates. under the same circumstances. Group A were received Acetaminophen, Group B received Acetaminophen and C.I extract 3%, Group C received Acetaminophen and C.I extract 6% , Group D received CI extract 3%, Group E received C.I extract 6%, Group F received only water and were kept as negative control. After 10 days, all groups were bled and then scarified.

**Results & Conclusion:** In histopathological examinations, group A showed centrolobular necrosis and sever fatty degeneration and bile retention was observed in some sections. Group B and C showed mild fatty degeneration and congestion only in some sections and severity of lesions was significantly reduced. In group D, E and F sections of liver were found normal. The results showed the protective effect of C.I extract in hepatic cells and it seems this effect is related to flavonoids compounds.

**Keywords:** *Cichorium Intybus*, Hepatotoxicity, Acetaminophen, Broiler.



### Tiotropium Efficacy on Reducing Airway Hyperactivity in Cat as an Animal Model for COPD

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**Objectives:** Chronic obstructive pulmonary disease (COPD), caused by tobacco smoke inhalation, is currently high ranked as the leading cause of death in the world and is predicted to be the 3rd in 2020 by World Health Organization (WHO). Tiotropium bromide is a long acting muscarinic antagonist for the treatment of COPD; however, its effect on cats as a model of COPD has not been studied thus far. This study was planned to study the effect of tiotropium bromide on airway smooth muscle reactivity in cat as an animal model for COPD.

**Materials & Methods:** Fifteen healthy adult male cats were used in this work. They were randomly categorized into three groups of five each: I) control, II) exposure to cigarette (COPD model) and III) exposure to cigarette (tiotropium treated COPD model). They were exposed to smoke for four days, using 190 cigarettes for each one totally. In group III, cats were treated with one tiotropium capsule once a day using endotracheal tubes. On the 5th day, animals in all groups were killed, and airway response to methacholine 10<sup>-7</sup> to 10<sup>-4</sup> mol/L was assessed in organ bath using isolated tracheal triple-ring.

**Results & Conclusion:** 1.9 fold increase in maximal airway responsiveness to methacholine (E max) was observed in cigarette smoke exposure group (COPD group) compared with control group (P=0.001), without an effect on the sensitivity (pEC<sub>50</sub>) to this agonist. Importantly, the increased airway contractility to methacholine following cigarette smoke exposure in COPD group was significantly reduced (1.4-fold) by tiotropium inhalation in these animals (P<0.05), without a change in pEC<sub>50</sub>. Experimental cigarette smoke-induced COPD causes were found to increase the airway responsiveness to methacholine. It seems that treatment with antimuscarinic agent like tiotropium may attenuate airway hyperresponsiveness in this animal model.

**Keywords:** COPD, Tiotropium, Cat, Cigarette, Airway.

### Histopathological Effect of Vitamin E on Testis tissue after treatment with Citalopram in rat.

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**Objectives:** Citalopram is a special selective serotonin reuptake inhibitor. In his drug is important in therapy of psychopathic and obsessive disorders, depression and nervous hyperorexi. Its side effects on endocrine are important too. In this study, the effects of Citalopram drug on pituitary- gonadoid and spermatogenes trend and vitamin E effects were examined.

**Materials & Methods:** This study was done experimentally on 40 male rats, from Wistar mice Control group were given saline Normal. Citalopram group were given 10 mg/kg Citalopram once a day. Vitamin E group, after taking vitamin E, were given 100 mg/kg vitamin E, once a day. Therapy group were given simultaneously 100 mg/kg vitamin E and 10 mg/kg Citalopram once a day. All groups received drugs injection. Ally (Ip) for 4 weeks (28 days). All groups were bled after 22 days, and their blood were taken for measuring serum concentration of testosterone by Radio immunoassay method.

**Results & Conclusion:** Citalopram usage in 10 mg/kg reduced testosterone serum concentration mean fully rather than control group (p<0.05). Meaningful difference in testosterone serum concentration in vitamin E receiving group was not observed relative to control group. (p>0.05). In spermatogenes process no meaningful differences were seen between experimental and control groups. Citalopram taking, damaged Leydig cells and reduced testis activation and testosterone hormone production, but vitamin E healed the Leydig cells and reduced the Citalopram caused damages.

**Keywords:** Testosterone, Citalopram, Leydig, vitamin E.





### Effect of mint on inflammatory bowel disease improvement in dog (IBD)

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**Objectives:** IBD is the most prevalent cause of chronic diarrhea and vomit in dog and cat and in the most cases the mainly originated not from infection and pharmacotherapy is done by the veterinarian .The diet of the animal plays an important role in accelerating the treatment of these kinds of disorders. Pharmaceutical properties of some plants have an important role in preventing digestive disorders. The mint and its effects on dog IBD were investigated.

**Materials & Methods:** In 2010out of the dogs which had been referred to private clinics in Tehran with symptoms of digestive diseases, 16 dogs suffering from IBD were chosen upon disease diagnose(biopsy, CBC).In this research the fresh mint plant was tested in 100 mg/ml and 200 mg/ml concentration after being boiled . The dogs were divided into two identical groups. Group I were feed 20 cc of the first solution and group 2 was fed the same quantity of the second concentration via syringe for a week.

**Results & Conclusion:** After one week the Biopsy and CBC were repeated and the results were compared before and after beginning the treatment. It was observed that 12 dogs (4 dogs of group 1 and 8 dogs of group 2) were healed after a week the trivial signs of healing in other dogs were observed too. The statistical analysis of the above mentioned results indicated that concentration of 200 mg/ml was more effective, and this concentration had a meaningful result in healing the disease. Therefore, consuming mint tea with concentration of 200 mg/ml is effective in digestive disease with no side effects of the chemical medication and will have better results that lower concentration.

**Keywords:** IBD, mint, dog.

### Effect of *Silybum marianum* Extract (Silymarin) on Healing of Experimental Burn Wounds in Rabbit

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**Objectives:** Silymarin, a flavonolignan from the seeds of 'milk thistle' (*Silybum marianum*), is a mixture of mainly three flavonolignans, viz, silybin, silidianin, and silychristine. Wound healing is the process of repair that follows the injuries to the skin and other soft tissues. It is fundamentally a connective tissue response. Initial stages of wound healing involve an acute inflammatory phase followed by synthesis of collagen and other extracellular matrix, which are later remodeled to form scar. Herbal therapy is becoming increasingly popular among patients and physicians.

**Materials & Methods:** Silymarin is an extract of the milk thistle plant that has been shown to have strong antioxidant and anti-inflammatory effects. Silymarin appears to be safe to use topically and orally when used appropriately. This investigation was undertaken on 10 male white rabbits. Experimental burn wounds (20 × 25mm<sup>2</sup>) were created in dorsal region of each animal. The group I animals were considered as control and were treated by topical applications of basic ointment. The group II animals were treated by topical applications of 50% silymarin ointment.

**Results & Conclusion:** Histopathological examinations of the burn wounds were carried out on 0, 7, 14 and 21 days of the experiment .Statistical analysis revealed that there was no significant difference (P>0.05) in wound healing between two groups. It seems 50% topical ointment of silymarin has no effect on wound healing process in rabbit.

**Keywords:** Silymarin, experimental burn wounds, healing.



### Determination of antibiotic susceptibility of *Escherichia coli* isolates from feces of household cats in Kerman

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**Objectives:** Antibiotics are extensively used in companion animals to control infectious disease. However, antimicrobial abuse can lead to the emergence and dissemination of resistant bacterial flora that can be passed via direct contact with into the pet owners. The objective of this study was to assess the presence of antibiotic resistance in *E. coli* recovered from healthy owned cats. In this study, 73 *Escherichia coli* isolates from healthy cats which referred to Kerman veterinary hospital for routine diagnostic investigation were collected. All strains were screened by antimicrobial susceptibility testing performed by the agar diffusion method with 13 selected antimicrobial drugs.

**Materials & Methods:** Resistance spectrum of *E. coli* for selected antibiotics in descending order were found against Ampicillin and Cefazolin (%100), Piperacilline and Gentamicine (94.52%), Kanamycin (%90.02), Trimethoprim-sulfamethoxazole (64.52%), Amoxicillin-clavulanic acid, Nalidixic acid and Oxacilline (53.42%), Tetracycline (45.20%), Cefixime (42.46%), Ciprofloxacin (41.09%) and Lincomycine (15.06%). All 73 isolates examined in this study, showed multiple resistances to at least six up to 13 antibiotics. A significant resistance to extended-spectrum  $\beta$ -lactamase and broad -spectrum cephalosporin's in this study was probably related to expanded use of this drugs in companion animals.

**Results & Conclusion:** The results of this study are of public health concern because non-judicious use of highly valuable antimicrobial drugs can result in selective pressure on bacterial populations of companion animals. This may lead to the spread of pathogens carrying resistance to newer antimicrobials by vertical and horizontal transmission of genes, with the subsequent risk of transfer to humans.

**Keywords:** *Escherichia coli*, antibiotic.

### Comparison of Prophylactic and Postoperative Antibiotic therapy following Ovariectomy in Rabbits

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**Objectives:** Ovariectomy is one of the most common surgeries in veterinary practice. Although, by using new techniques, antibiotic treatment period following the surgery is dramatically shortened, the way of administration of such drugs is still not well defined. The present study will compare the infection preventing effect of Prophylaxy with post operative antibiotic therapy.

**Materials & Methods:** A total of 12 White New Zealand rabbits were selected and sorted in 3 groups, randomly. They underwent routine and sterilized Ovariectomy. In the 1st group, Cephazoline was administered (20 mg/kg IV) before the operation; in the 2nd group, the same dose was used 1 hour before and every 12 hours after operation for 3 days; in the 3rd group, the same dose was injected post operation only for 3 days every 12 hours. All cases were monitored 1, 3 and 7 days after surgery for the presence of any clinical signs for infection like inflammation, swelling, abscess formation,

**Results & Conclusion:** There were no significant differences among the groups in all laboratory and clinical findings. All were found to be healed in proper time and no infection happened. The results of this study showed that using just one dose of Prophylaxy antibiotic therapy following a sterilized operation will be effective enough and overusing of antibiotics should be limited.

**Keywords:** Antibiotic therapy, surgery, rabbit.



**Comparison of intraperitoneal anesthesia induced by combination of *Pelargonium roseum* essential oil - ketamine and Diazepam -ketamine in male rat**

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**Objectives:** The aim of this study was to compare the intraperitoneal anesthesia by combination of *Pelargonium roseum* essential oil - ketamine (PK) with Diazepam- ketamine (DK) in male rat.

**Materials & Methods:** Following dose determination of anesthesia in a pilot study, 24 male healthy rats (250-300) randomly assigned in 3 treatment groups and received *Pelargonium roseum* essential oil (PR) alone, PK and DK (n = 8). Heart and respiratory Rate, induction and duration of surgical anesthesia and walking times, body temperature, withdrawal reflexes (pedal withdrawal, lip and tail pinches) were measured.

**Results & Conclusion:** Our results showed that in both groups (except PR group) induced surgical anesthesia (SA) and walking time in PK group were significantly shorter than DK group ( $P < 0.05$ ). There was no significant difference in heart and respiratory rates among the three groups. Body temperature in PR group increased significantly compared with PK and DK groups ( $P < 0.05$ ). The tail and pedal pinch scores were significantly lower in DK compared with other groups ( $P < 0.05$ ) but in lip pinch there was no significant difference among groups. In conclusion, anesthesia with PK combination was preferred to short time of anesthesia and *Pelargonium roseum* essential oil like diazepam had rapid onset, short duration of SA and faster recovery time and it seems GABAergic activity involved in *Pelargonium roseum* anesthetic propriety. But, further studies are needed for determining mechanism of action.

**Keywords:** *Pelargonium roseum*, Essential oil, Ketamine, Diazepam, GABAergic, Intraperitoneal, Rat.

***Rosa damascena* Essential Oil effect for Attenuation of Morphine Withdrawal Signs in Mice**

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**Objectives:** Several evidences have shown GABAergic system plays an important role in the development of morphine-induced physical dependence. The present study was performed to investigate the effect of *Rosa damascena* essential oil, with GABAergic activity, on the withdrawal signs of morphine in mice.

**Materials & Methods:** Dependence was induced by injection of morphine (SC.) three times daily at 50, 50 and 75 mg /kg, respectively, for 3 days. On day 4, only single morning dose of morphine (50 mg /kg) was injected and 1.5 h before the administration of naloxone (5 mg/kg) animals were treated by different percentages of *Rosa damascena* essential oil (5, 20 and 40 %, V/V). Thirty minute after naloxone injection, withdrawal signs were recorded with number of jumping and diarrhea, grooming, wet dog shake, teeth chattering, writhing, climbing as scores of 0 to 3 during 30min.

**Results & Conclusion:** The results showed that different percentages of *Rosa damascena* essential oil compared to control group significantly can attenuate morphine withdrawal signs such as number of jumping ( $p < 0.05$  and  $p < 0.01$ ), grooming, teeth chattering, climbing, wet dog shakes, writhing and diarrhea ( $p < 0.05$ ). Based on the findings and in accordance with other studies it seems flavonoids of *Rosa damascena* essential oil with GABAergic activity can attenuate morphine withdrawal signs.

**Keywords:** *Rosa damascena*, Morphine, GABAergic system, Withdrawal signs, Mice.



### Central effect of Xylazine and Yohimbine on sensitivity against pain in various stages of estrus cycle in Hamster.

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**Objectives:** It seems that sexual hormones regulate sensitivity to pain .Effect of  $\alpha_2$  adrenergic receptors on sensitivity to pain is studied using Formalin test. So in this study the effect of Xylazine and Yohimbine intra ventricular brain injection on sensitivity to pain in various steps of estrus cycle was studied using Formalin test for Hamsters. Yohimbine included  $\alpha_2$  adrenergic antagonist which diversifies xylazine's depressive effects.

**Materials & Methods:** Formalin test is done by sub cutaneous injection of 40 micro liter of Formalin 2.5% on back leg. Animals were divided in four groups: 1.Control group, 2.control group (animals that received 2 micro liter of artificial Cerebro Spinal Fluid in the form of intra ventricular brain, 3.Agonist injection group (Animals that received 2 micro liter of xylazine in dosages of 5 and 10 micro gram per hamster.), 4.Antagonist injection group (Animals that received 2 micro liter Yohimbine in dosages of 5 and 10 micro gram per hamster.)Data were analyzed using repeated bilateral variance test.

**Results & Conclusion:** Data showed that xylazine reduced significantly ( $p<0/05$ ) sensitivity against pain in every steps of estrus cycle , but this effect was minimum and maximum in met estrus and estrus step , respectively .In every step of estrus cycle , Yohimbine caused a significant increase ( $p>0/05$ ) on sensitivity to pain .This effect of Yohimbine was maximum in met estrus step and minimum in pro estrus step .Result of this study indicates that  $\alpha_2$  adrenergic system interface with internal sexual steroids is important for regulation of sensitivity to pain.

**Keywords:** Formalin test, Yohimbine, Hamster, Xylazine, Estrus cycle.

### Co-administration of ascorbic acid and levodopa potentiated morphine induced- conditioned place preference in male mice

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**Objectives:** This study was performed to evaluate the effect of Co-administration of ascorbic acid (AA) and levodopa on morphine induced- conditioned place preference (CPP) in male mice.

**Materials & Methods:** The CPP paradigm in a three-chamber, unbiased, apparatus, took place on 6 consecutive days. In the first set of study, the drug was used during the development of CPP by morphine or used alone in order to see if it induced CPP or conditioned place aversion (CPA). . In the second set of study, the drugs were used before testing on day 6, in order to test their effects on expression of morphine –induced CPP.

**Results & Conclusion:** The data showed that intraperitoneal injection of morphine (2.5-10 mg/kg) dose - dependently induced CPP in mice( $P<0.001$ ). Ascorbic acid (1-30 mg/kg) and levodopa (2.5-30mg/kg) alone did not influence CPP. AA (5, 30 mg/kg) ( $P<0.01$ and  $P<0.001$  respectively) and levodopa (30 mg /kg) ( $P<0.001$ ) with morphine (5mg/kg) induced morphine like- CPP and their effect potentiated in concurrent use ( $P<0.001$ ), but it is not a dose-dependent manner. Morphine produced reward (reinforcement) by activation of  $\mu$  receptors which facilitated dopamine (DA) release. On the other hand, glutamate can facilitate the release of DA. It was concluded that low doses of AA may modulate synaptic action of DA and glutamate and levodopa by increasing DA levels in synaptic cleft, both induced morphine like-CPP and their effect potentiated in concurrent use. So, their combination by stimulation reward system can be useful for controlling drug -seeking and drug- taking behaviors in morphine addicts.

**Keywords:** Morphine, ascorbic acid, levodopa, conditioned place preference, mice.



### In vitro determination of contraceptive spermicidal activity of *Vitis vinifera* L. seed and leave hydro-alcoholic extract on rat sperm

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**Objective:** Since ancient times, the different parts of *Vitis vinifera* L. (Grape) plant have been used because of many biological activities in traditional medicine, such as administered grape to treat constipation, gastritis. Thus, applied grape seed could harmful for kidney, although, it could decrease sperm. Grape leaves have been used to stop bleeding, inflammation, such as the kind brought on by hemorrhoids in the traditional medicine. So the aim of present study was to study the effect of grape seed and leave hydro-alcoholic extract (GSHE & GLHE) on sperm motility with in vitro method in rats.

**Materials & Methods:** GLHE & GSHE were prepared, and the two concentrate extracts (0.04 and 0.08 g/ml) were administered. 30 adult Wistar rats were used and divided into five groups: group 1 (received 1ml normal saline orally), group 2 & 3 (received 250 & 500 mg/kg GLHE respectively orally), group 4 & 5 (received 250 & 500 mg/kg GSHE respectively orally). All animals anesthetized, then, their couda epididymis dissected and 200 times attenuated with normal saline (37°C) and extracted sperms. A drop of it was placed on a Neubauer's slide and sperm motility was recorded under microscope. Staining was performed to assess sperm viability.

**Results & Conclusion:** Concentration of 0.04 g/ml of the GLHE was significantly decreased sperm motility (within 2 for groups 2 and 3 (%7.82) (%6.15) and 10 (%1.11) (%0.55) min. respectively vs. to control within 2 (%86.66) and 10 (%40.81) min., and at a concentration of 0.08 g/ml of the GLHE, the sperm motility was significantly decreased in groups 2 and 3 (within 2 (%7.88) and 10 (%7.88) min., but this concentration showed the most promising results by complete sperm immobilization in groups 2 and 3 within 10 min. After the application of the extract concentration of 0.04 g/ml of the GSHE were significantly reduced sperm motility in group 4 (0.04 mg/ml: within 2 (%10.62) and 10 (%6.14) min., vs. to control. 0.08 mg/ml: within 2 (%22.32) and 10 (%12.63) min., but in group 5 administered 0.04 and 0.08 g/ml GSHE was not significant. Sperm viability was found to be nonviable after 30 min when treated with the extract at a 0.08 g/mL. The findings indicated that these extracts possess potential contraceptive spermicidal activity in vitro.

**Keywords:** In vitro, Grape seed, Grape leave, Sperm, Rat.

### Enhancement of the Ketamine-Xylazine Induced General Anesthesia by Vitamin C in Rats

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**Introduction:** The present study was designed to study the effects of ascorbic acid (vitamin C for premedication on ketamine/xylazine anaesthesia in the rat.

**Material & methods:** Fifty albino laboratory rats (Sprague-Dawley) of either sex were divided into five groups (A, B, C, D and E) of ten rats in each. Rats in groups C, D and E were pre-treated with 50, 100 and 150 mg/kg of Vit C respectively. The animals in group A (control) were treated neither with VitC nor ketamine/xylazine. A combination of ketamine 5% (40 mg/kg) and xylazine 2% (5 mg/kg) was administered intraperitoneally (I.P.) to all groups except group A. The onset and duration of hypnosis as well as vital signs were observed and recorded.

**Results:** A significant ( $p < 0.01$ ) decrease in the onset and increased duration of anaesthesia in the animals treated with medium (group D) and high (group E) doses of VitC were noticed. In addition, cardiac and respiratory rates were decreased in all anaesthetized animals, irrespective of the presence or absence of the pre-treatment and dose of vitamin C.

**Concluding Remarks:** Administration of VitC at 150 mg/kg prior to ketamine/xylazine treatment could be used to decrease the time needed to induce and to increase the duration of anaesthesia in rats. Application of VitC as a premedication agent in clinical practice might be of interest in human and animal patients to lower required dose of anaesthetics and to minimize the side effects.

**Keywords:** Vitamin C, Ketamine, Xylazine, Rat, General anaesthesia.



**Evaluation of the effects of ginger (*Zingiber officinale*) and recombinant bovine somatotropine on growth performance and survival rate of rainbow trout (*Oncorhynchus mykiss*)**

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**Objectives:** The aim of this research was to evaluate the effects of oral ginger (*Zingiber officinale*) powder and recombinant bovine somatotropine on growth performance and survival rate in rainbow trout fry.

**Materials & Methods:** 900 rainbow trout fry (*Oncorhynchus mykiss*) weighing  $45 \pm 1$  grams were randomly allotted in three groups including: 1) the control group 2) ginger group and 3) recombinant bovine somatotropine (RBS) group, each in three replicate. In this research, the experimental fish received of 200g ginger powders or 200g RBS per 100kg body weight. The way of administration of drugs to fish was orally once a day for 12 weeks.

**Results & Conclusion:** The results obtained in this research demonstrated that there were significant differences between means of growth factors in WBW, WG, ADG, TL, and ADL of between ginger or RBS groups and the control group on day 84 of rearing period. Also, there was greater CGR in ginger or RBS groups than the control group ( $p < 0.05$ ). There were no significant differences between specific growth rate, condition factor, food conversion rate and the percentage of survival ratio of the control and ginger or RBS groups in rearing period ( $p > 0.05$ ). There was no significant difference between two groups of ginger and RBS on above mention growth factors. In this research generally, treatment with ginger powder or RBS increased final WBW, WG, ADG, TL, ADL, and CGR. This data show that oral administration of ginger or RBS was a suitable way to regulate and to increase growth in rainbow trout fry.

**Keywords:** Ginger; *Zingiber officinale*; recombinant bovine somatotropine; Growth Performance, Survival rate; Rainbow trout; *Oncorhynchus mykiss*

**Using *Kelussia odoratissima* E.Os for inhibition of *E.coli* (Urine Isolated)**

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**Objective:** In current study using *Kelussia odoratissima* essential oils for in vitro growth inhibition of an urine isolated *E. coli* were reported.

**Material and Methods:** The disc diffusion method was used for evaluation of the antibacterial effects of *Kelussia odoratissima* E.Os in comparison to some routine antibiotics. Minimum Inhibitory Concentration (MIC) of *Kelussia odoratissima* E.Os against *E. coli*, using tube dilution technique was studied. In titration technique for MIC, the concentration of the extracts was estimated in v/v in DMSO (Dimethyl sulfoxide) as inert solvent. For MBC (Minimum Bacterial Concentration) studies 0.1 ml of MIC titer beside, a tube before and after, MIC titer were used for cultivation on Muller Hinton agar

**Conclusions:** Based on the results, the zones of inhibition for 10  $\mu$ l, 15  $\mu$ l and 20  $\mu$ l of saturated EOs disks were 12 mm, 14 mm and 17 mm respectively, and the zones of inhibition diameter for antibiotic disks of Nitrofurantoin (Ntf), Oxytetracycline (Oxy) and Sulfamethoxazole (Sfx) were 19 mm, 16mm and 17 mm respectively. In MIC technique, it is oriented that the concentration of 1/80 inhibits *E.coli* growth but for MBC, the bacterial growth on Muller Hinton agar was not stopped

**Key words:** Antibacterial effects, *E. coli*, MBC, MIC, *Kelussia odoratissima* E.O



### Antibacterial activity of *Alium hiritifolium* E.Os for inhibition of *E.coli* (Urine Isolated)

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**Objective:** In current study using *Alium hiritifolium* essential oils for in vitro growth inhibition of an urine isolated *E. coli* were reported.

**Material and Methods:** The disc diffusion method was used for evaluation of the antibacterial effects of *Alium hiritifolium* E.Os in comparison to some routine antibiotics. Minimum Inhibitory Concentration (MIC) of *Alium hiritifolium* E.Os against *E. coli*, using tube dilution technique was studied. In titration technique for MIC, the concentration of the E.Os was estimated in v/v in DMSO (Dimethyle sulfoxide) as inert solvent. For MBC (Minimum Bacterial Concentration) studies 0.1 ml of MIC titer beside, a tube before and after, MIC titer were used for cultivation on Muller Hinton agar.

**Conclusions:** Based on the results, the zones of inhibition for 10 µl, 15 µl and 20 µl of saturated EOs disks were 18 mm, 22mm and 25mm respectively, and the zones of inhibition diameter for antibiotic disks of Nitrofurantoin (Ntf), Oxytetracycline (Oxy) and Sulfamethoxazole (Sfx) were 19 mm, 16mm and 17 mm respectively. In MIC technique, it is oriented that the concentration of 1/80 inhibits *E.coli* growth and for MBC, the bacterial growth on Muller Hinton agar was stopped

**Key words:** Antibacterial effects, *E. coli*, MBC, MIC, *Alium hiritifolium* E.O

### Evaluation of the Efficacy of Treatment with Progesterone Hormone on Conception Rate in Repeat Breeder High Yielding Cows

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**Objectives:** The objective of this study was to evaluate the effect of post insemination supplementation with exogenous progesterone for 7 day and in a sustained release mode on conception rate in repeat breeder high yielding dairy cows because one of the factors implicated in low fertility in high yielding cattle is low circulating concentrations of progesterone during the pre-implantation phase of embryonic development.

**Materials & Methods:** The experiment was carried out in a commercial dairy herd, 600 Holstein in milk. High yielding cows (n=60) (Peak>45kg) were divided randomly into treatment and control groups while all were repeat breeder (minimum 4 unsuccessful insemination). Treated cows (n=30) received a progesterone releasing device (CIDR: Controlled Internal Drug Release, 1.9g progesterone, Pfizer, New Zealand) on day 5 post insemination which was removed after a week. Control cows (n=30) did not receive any treatment. The differences in considered parameters (pregnancy rate and the average number of service) between two groups were analyzed by T-Student test.

**Results & Conclusion:** Pregnancy rate in first service following use of CIDR was no significant different between treatment group (46.7%) and control group (26.7%) (P=0.11). The average number of service to pregnancy following use of CIDR into treatment group (1.06±1.31) was no significant different compared to that for control group (1.16±0.98) (P=0.10). Results indicated that supplementation with exogenous progesterone (CIDR) from 5 to 12 day post-insemination does not improve of conception rate in repeat breeder high yielding dairy cows (P>0.05).

**Keywords:** Progesterone, Conception rate, high yielding, Repeat breeder





### Study of benzocaine hydrochlorid in *Carassius carassius* (Linnaeus, 1758) anesthesia

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**Objectives:** *Carassius carassius* is a freshwater fish that inhabits lakes, rivers and reservoirs in various countries in Asia and Europe. They normally dwell in the bottom layer of the water column. Comparatively, they can tolerate a wide range of environmental conditions. They are sedentary fish, which can propagate naturally in various types of water bodies, such as rivers and lakes. Several different chemicals have been used as anesthetics in fish biology researches to reduce handling stress on fish.

**Materials & Methods:** In the present study the efficacy of benzocaine hydrochlorid was investigated in *Carassius carassius* using immersion method. 30 fish of 100 gr average weight were obtained (Shahrekord- Iran) and were kept in a tank (1000-liters), containing aerated re-circulating well water around 20-22°C for one week prior to experimentation. The benzocaine powder were solved in ethanol (0.1g/1ml) and kept in a dark flask. Four concentrations of benzocaine were tested, namely 10 mg/l, 20 mg/l, 40 mg/l, 60 mg/l and 80 mg/litre.

**Results & Conclusion:** Stages of analgesia and anaesthesia such as ataxia and reduced response to stimulation, ventilation decreased, erratic swimming, partial loss of equilibrium, and reduced activity and finally absent respiration were monitored. Development of anaesthesia to stage 4 was the main index for efficacy of the anaesthetic. Results showed that 80 mg/l Benzocaine hydrochloride with 3 min and 60 sec and, 4 min and 91 sec, respectively for induction and recovery times were the most suitable dosages for anesthetise of fish. Induction times for all stages of anaesthesia decreased significantly with increasing concentrations of benzocaine. Glucose concentrations and plasma cortisol were significantly lower in the anaesthetized groups than the control group and tended to decrease with an increasing dose of benzocaine ( $p < 0.05$ ). The cortisol concentrations at the anaesthetic stage for the 80 mg/l group were significantly decreased compared with the other groups but differences in glucose concentrations between groups were not significant. In conclusion, the fish group exposed to 80 mg/l benzocaine had a fast induction time for all monitored stages, low glucose concentrations and circulating cortisol.

**Keywords:** benzocaine hydrochlorid, *Carassius carassius*, anesthesia, stress, cortisol

### 17 $\beta$ -estradiol attenuates stimulatory effect of leptin on TNF- $\alpha$ secretion from peripheral blood mononuclear cells

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**Objectives:** Leptin modulates immune response by inducing the release of pro-inflammatory cytokines, such as IL1 $\beta$ , IL6, INF $\gamma$ , and TNF- $\alpha$ . Inhibition of leptin actions may provide a potential therapy for some disorders in which a role for leptin has been established. In the present study the influence of 17 $\beta$ -estradiol on TNF- $\alpha$  production by leptin- or lipopolysaccharide (LPS)-activated human peripheral blood mononuclear cells (PBMCs) was examined.

**Materials & Methods:** The influence of 17 $\beta$ -estradiol on leptin- or LPS-induced TNF- $\alpha$  secretion from peripheral blood mononuclear cells (PBMCs) was assessed, as measured by ELISA in media.

**Results & Conclusion:** Both leptin (10-1000 ng/ml) and LPS (0.1-100 ng/ml) increased TNF- $\alpha$  production by PBMCs in a dose-dependent maner, whereas 17 $\beta$ -estradiol alone was unable to induce TNF- $\alpha$  production. 17 $\beta$ -estradiol at 10 nM significantly inhibited TNF- $\alpha$  production by leptin-activated PBMCs ( $P < 0.01$ ). Although preincubation with 17 $\beta$ -estradiol reduced the effect of LPS production, the decrease did not reach on the induction of TNF statistical significance. In conclusion, leptin as well as LPS dose-dependently enhance TNF- $\alpha$  secretion from PBMCs. 17 $\beta$ -estradiol attenuates leptin-induced PBMCs TNF- $\alpha$  production.

**Keywords:** Leptin, TNF, PBMCs





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