

Workshop
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Urgency for appropriate preventives to abolish Coccidiosis and Toxoplasmosis endemic: Never ending dilemma and possible alternatives


Apicomplexans are sophisticated cosmopolitan organisms to include *Toxoplasma* and *Coccidia* which cause important infectious foodborne diseases in humans and animals. *Toxoplasma* is ubiquitous and invades every nucleated cells and organs with severe life threatening systemic inflammation in fetal, neonatal and immune-compromised individuals. Coccidias are highly host specific mainly lodge in gut mucosa and compromise immune system to trigger gastrointestinal inflammatory complications and infectious diarrhea. Similarly, *Toxoplasma* sexual stage is specific in definitive host to cat gut mucosa, with coccidian life cycle. Over century after their discovery, yet there is no safe and effective preventive measure or vaccines available. Coccidiosis is one of the most important communicable pathogenic diseases resulting in morbidity and mortality in food animal industry. The common practice includes the use of antibiotic additives in poultry and livestock diets which contaminate eggs, milk, bones and meat production. Antibiotics can enter the food chain and consumed by humans with possible allergic, antibiotic resistance, and other yet unknown side effects. For instance, robust and balance gut microbiota are required to support health and growth. Application of continuous antibiotics can alter this delicate balance in digestive tract to promote dysbiosis and

the state of disease. The annual cost of coccidiosis in poultry production alone has been estimated \$800 million in USA. There is an urgent need for appropriate preventives to abolish Coccidiosis and Toxoplasmosis endemic. This workshop presentation will scrutinize Toxoplasmosis and Coccidiosis and novel therapeutics and possible preventive modalities including altered aberrant organisms which are proven nonpathogenic in immunosuppressed yet immunogenic in immune-intact animals as a model to protect against the infectious disease.

Speaker Biography

Helieh S Oz has DVM, and MS (U. IL); PhD (U. MN) and clinical translational research certificate (U. KY Med Center). Dr Oz is an active member of American Association of Gastroenterology (AGA) and AGA Fellow (AGAF). Dr Oz is Microbiologist scientist with expertise in infectious and inflammatory diseases, drug discoveries, pathogenesis, innate and mucosal immunity, molecular biology, and micronutrient. Dr Oz has over 90 publications in areas of chronic inflammatory disorders (e.g. pancreatitis, hepatitis, colitis), microbial and infectious diseases (e.g. Toxoplasmosis, Trypanosomiasis, Babesiosis, Coccidiosis, *Pneumocystis pneumonia*). She has served as Lead editor for special issues including Gut Inflammatory, Infectious diseases and Nutrition 2017 (Mediators of Inflammation); Nutrients, Infectious and Inflammatory Diseases 2017 (Nutrients); Gastrointestinal Inflammation and Repair: Role of Microbiome, Infection, Nutrition 2016 (Gastroenterology Research Practice), and co-editor for Parasitic infections in pediatric clinical practice 2017 (J Pediatric Infectious Disease), Chagas Disease, Intech Open Science 2017 and member of different advisory committees.

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 Notes:

Scientific Tracks & Abstracts

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***Neospora caninum*-induced inflammation causes abortion which is prevented by vaccination with parasite-derived immune modulators**

Wenbin Tuo

United States Department of Agriculture /ARS, USA

Statement of the Problem: *Neospora caninum* is a protozoan parasite causing bovine neosporosis. Although seroprevalence of *N. caninum* is high in many of its intermediate hosts, the clinical disease associated with livestock production is manifested primarily in cattle. Neosporosis as an emerging disease is considered a major cause of abortion in cattle worldwide, which has been estimated to account for 20% of all cattle abortions. Currently, there is no drug or vaccine available to treat or prevent neosporosis. *N. caninum* infection does elicit a strong inflammatory immune response in the hosts; however, the resulting immunity does not appear to be protective.

Methodology & Theoretical Orientation: It has been believed that the unusual inflammation induced by *N. caninum* results in pregnancy loss by causing detrimental immunopathology at the fetal-maternal interface. We hypothesize that immunization against the parasitic molecules responsible for stimulating high host inflammation may confer protection.

Findings: Our studies identified a group of parasite-derived immunomodulators, including *Neospora* cyclophilin (NcCyP) and profilin (NcPro), which mediate *N. caninum*-elicited host immune responses and inflammation. In the mouse and ruminant models, immunization with both NcCyP and NcPro

resulted in high levels of antibody production and protected against *Neospora* challenge infection and neosporosis-associated abortion following challenge infection.

Conclusion & Significance: These results indicate that the approach to prevent and control neosporosis in ruminants by a vaccine is feasible and in particular, a bacterial expression system produced recombinant vaccine has the advantages of being highly efficacious and cost-effective. Our studies provided the first evidence that neosporosis or neosporosis-associated abortion is preventable by immune modulator-based vaccines and the application of this vaccine will increase cattle productivity by significantly reducing reproductive losses associated with *N. caninum* infection.

Speaker Biography

Wenbin Tuo has expertise in protozoan and nematode parasite infectious diseases in livestock species. He has devoted his professional career to understanding host-parasite interactions and development of immunologic control measures for parasitic infections in large ruminants. Vaccine candidates identified by antigen-specific CD4 T cells and parasitic immune modulators that are able to cross-downregulate host protective immunity have been tested in numerous vaccine trials and some of the vaccines have been demonstrated to have significant protective efficacies. His ongoing research involves continued investigation of interplays between the parasites and hosts and identification and testing of protective candidate vaccines in ruminants.

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 Notes:

The long-term changes in abundance of fleas on the grey marmots (*Marmota baibacina*) hosts as main vectors of plague in the Tien-Shan natural plague focus, Kyrgyzstan

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Statement of the Problem: The main problem is to survey the abundance and epizootic status of grey marmots (*Marmota baibacina*), the main hosts of plague in mountains areas of Tien-Shan and their fleas, the main vector of plague.

Methodology & Theoretical Orientation: Investigation of plague focus included rodent trapping, collection and identification of rodent ectoparasites, calculation of parasitological indices, bacteriological testing of rodents and their ectoparasites. Fleas were collected from marmot wool and nests after digging their burrows.

Findings: In Issyk-Kul region of Kyrgyzstan there were two natural plague foci: Verknernaryn (area 8000 sq.km) and Sari-Dzhas (800 sq.km). The most distant and difficult to reach high mountain area of Verknernaryn focus is Usengegush that reaches the territory of China. Epizootics of plague with different intensity were observed here many times since 1951. The average number of marmots in the area was 21.4 animals per sq.km in 2010. Such parameter was significantly lower compared to 1951-1952 (Fig. 1). There were two species of marmot fleas—*O. silantivi* and *R.li. ventricosa*. Flea load varied from 0.5 until 5.5 per animal in 1951-1978. After large epizootics reported in 1975 and resulted in isolation

of 39 strains of *Yersinia pestis* the territory of Verknernaryn focus was under intensive insecticide program by dusting marmots' burrows by DDT. By 1988 prevalence of fleas was significantly reduced. Our observations suggested that abundance of fleas has increased again during last years.

Conclusion & Significance: The origin of human plague cases is in the marmot reservoir and the marmot fleas in Tien-Shan Mountains. The extermination of flea vectors lead to the break of plague transmission chain. The reduction of the plague control measures creates a risk of new plague cases.

Speaker Biography

Gulmira Sariyeva completed her Ph.D in biology, associative professor of Issyk-Kul state university, Karakol, Kyrgyzstan. After graduation of Al-Farabi - Kazakh state university, faculty of biology, she completed Ph.D in area of adaptation of plants to different environmental stresses. During further research and teaching in Issyk-Kul state university she turned her research interests in the field of sustainable development on the level of whole ecosystem, its interaction with environmental and human factors. Since 2010 she is a project manager of International Science and Technology Center in the area of plague epidemiology and epizootology in natural mountain transboundary area located in Kyrgyzstan and Kazakhstan. As a result of team work with Karakol anti-plague department big area of 5600 km² of difficult to reach highland area was investigated: its epizootological and parasitological state was estimated first after 25-30 years. Comparative analysis with archive data is in the process.

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 Notes:

Nonspecific prevention in conditions of high-mountainous natural foci of the plague of Kyrgyzstan

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Statement of the Problem: The transboundary Sari-Dzhas natural focus of plague is located in north of Tien-Shan high-mountains of Kyrgyzstan. Plague activity within this focus has been high since 1940. In total, 473 plague epizootics were registered in grey marmots (*Marmota baibacina*), the main host from 1944 till 2016. The main objective is to analyze a long-term effect of preventive measures by dusting marmot burrows in this area undertaken in 1970s.

Methodology & Theoretical Orientation: The disinsection of the plague focus territory was implemented by dusting marmot burrows by DDT in 1974-1977. The flea control was aimed to disrupt the chain of pathogen transmission between animals and from animal to man

Findings: Before intensive flea vectors by DDT there were isolated 462 strains of plague in the focus. Those were - from marmots (225), small rodents (2), and from ectoparasites, mainly fleas (207) (Fig.1). The average index of flea abundance was 1.3. After dusting the marmot burrows the number of isolated strains decreased sharply with a total number of isolates strains reduced to 11. Those were - from

marmots (8), small rodents (1), and ectoparasites (2). The index of flea abundance declined to 0.2-0.8.

Conclusion & Significance: The deep dusting of marmot burrows has led to the long-term effect on plague circulation within the Sari-Dzhas focus. However, alternative preventive measures, specifically more ecological friendly, should be introduced. Importantly, the plague endemic territory in the distant and difficult to reach areas of Tien-Shan Mountains should be monitored on annual basis.

Speaker Biography

Sabyrzhan Abdikarimov is graduated from Kyrgyz State Medical Institute specializing in hygiene, sanitation and epidemiology; President Academy of Management of the Kyrgyz Republic in 2012 with specialty in Political Management. Since 1981 he is working in sanitary-epidemiological administration of the Ministry of Health of the Kyrgyz Republic. In 2010 was the Minister of Health of Kyrgyzstan and since 2013 is co-working as a chief of Department of General and Clinical Epidemiology of Kyrgyz state medical academy. In 2016 he has been a Director of Republic center of quarantine and dangerous infections. In total he has more than 30 published works, 3 monographs, 5 methodical guides. The research area is Epidemiology of infections with waterways transfer, improving of diagnostics of especially dangerous infections: brucellosis, anthrax, plague, cholera in the Kyrgyzstan, control of activation of epizootic activity in the north of Kyrgyzstan.

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 Notes:

Results of molecular-genetic and epizootological monitoring of the Saryjaz autonomous area of Tien-Shan mountains natural foci of the plague

Ziyat Abdel

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Statement of the Problem: After 30 years of the long stable period, plague activity within the transboundary Sari-Dzhas natural focus located in Kyrgyzstan and Kazakhstan, has increased since 2012. The main objective is to survey plague activity and role of natural hosts of plague, grey marmots (*Marmota baibacina*) and plague vectors – fleas and other ectoparasites in Sari-Dzhas.

Methodology & Theoretical Orientation: The survey of ecological, microbiological and epidemiological parameters of plague activity in the Sari-Dzhas natural focus was conducted each year from 2012 to 2016. Overall, 772 marmots, 418 small rodents, 1376 rodent ectoparasites were tested for plague, as well 32 strains of *Yersinia pestis* were characterized. Among them, 16 strains were isolated from the Sari-Dzhas focus before 2012 and 16 strains after 2012. The latter included strain obtained from human patient after plague outbreak in 2013. For VNTR analysis, DNA fragments of five reference strains of *Y. pestis* were used: CO92 (biovar *Orientalis*), KIM10 (biovar *Medievalis*), Pestoides F, Nepal516 (biovar *Antiqua*) and *Y. pseudotuberculosis* 2841. The strains were provided by Department of Pathology of the University of Texas Medical Branch.

Findings: The density of marmots population in Sari-Dzhas focus increased from 26.7 animals per 1 sq.km in 2012 to 51.7 in 2016. Reproductive status of marmots was also higher


in 2016 comparing to 2012: The proportion of reproductively active marmot females (pregnant or lactating) increased from 33.3% to 46.6%. The load of marmots flea during this period increased from 0,4 to 13,7. The strains of *Y. pestis* identified in the Sari-Dzhas natural focus belonged to *Antiqua* and *Medievalis biovars*.

Conclusion & Significance: The circulation of plague pathogen within territory of the Sari-Dzhas natural focus was continuous, but with evident fluctuation of activity. The activity of plague depends on host-parasite system, including multiple abiotic and anthropogenic factors.

Speaker Biography

Ziyat Abdel is the head of Biomedicine and Cell Biotechnology Laboratory of Scientific Production Enterprise "Antigen" and Executive Director of Center for Medicine and Prevention "Genesis Kazakhstan", Almaty, Kazakhstan. After graduation the Karaganda State Medical Institute, specializing in hygiene, sanitation and epidemiology, he has completed Ph.D of Medical Sciences and is a doctor of highest category in social hygiene and health care organization. In 2011-2016 years he was the head of plague laboratory of Kazakh Scientific Center for Quarantine and Zoonotic Infections. He has 30 years-long practical experience in epidemiology and microbiology of especially dangerous infections, from them 21 are in anti-plague service. Abdel Ziyat has 4 author's certificates on innovative patents and deposited strains of especially dangerous infections, 55 scientific publications in Kazakhstan and international publications. He is a member of 2 international NGOs, was the head of many scientific and technical programs and participant of international scientific projects.

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 Notes:

Bacterial volatile ammonia regulates the consumption sequence of D-pinitol and D-glucose in a fungus associated with an invasive bark beetle

Min Lu

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Interactions among microbial symbionts have multiple roles in the maintenance of insect-microbe symbiosis. However, signals mediating microbial interactions have been scarcely studied. In the classical model system of bark beetles and fungal associates, fungi increase the fitness of insects. However, not all interactions are mutualistic some of these fungal symbionts compete for sugars with beetle larvae. How this antagonistic effect is alleviated is unknown, and recent research suggests potential roles of bacterial symbionts. Red turpentine beetle (RTB), *dendroctonus valens* LeConte, is an invasive pest in China, and it leads to wide spread, catastrophic mortality to Chinese pines. In the symbiotic system formed by RTB, fungi and bacteria, volatiles from predominant bacteria regulate the consumption sequence of carbon sources D-pinitol and D-glucose in the fungal symbiont *Leptographium procerum*, and appear to alleviate the antagonistic effect from the fungus against RTB larvae. However, active components of these volatiles are unknown.

We detected 67 volatiles by gas chromatography-mass spectrometer (GC-MS). Seven of them were identified as candidate chemicals mediating bacteria-fungus interactions, among which ammonia made *L. procerum* consume its secondary carbon source D-pinitol instead of its preferred carbohydrate D-glucose. In conclusion, ammonia regulated the consumption sequence of these two carbon sources in the fungal symbiont.

Speaker Biography

Min Lu is a Professor at the Institute of Zoology (IOZ), Chinese Academy of Sciences (CAS). He received his PhD in Ecology from Institute of Zoology, Chinese Academy of Sciences, China, and held a postdoctoral fellow from 2008-2009 in FABI in University of Pretoria, South Africa, and then an Associate Professor position from 2011-2015 at the Institute of Zoology, CAS. His research includes forest protection, invasion biology, and microbial ecology. He made great achievements in the scientific research of the invasive mechanism of insect-microbial symbiosis, and published more than 20 SCI papers in *Ecology*, the *ISME Journal* and *Annual Review of Ecology, Evolution and Systematics* etc.

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 Notes:

The knight stick trap and knight stick sticky wraps: New tools for stable Fly Diptera: Muscidae management

Jerome A Hogsette

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Statement of the Problem: Stable fly management is difficult, especially where pesticide usage is restricted. Traps have been used for monitoring stable flies, but have rarely been used for management. The Knight Stick (KS) trap recently became available and preliminary studies indicated that it might be an improvement to currently used traps.

Materials and Methods: KS traps and Olson traps, an industry standard, were compared at an equine facility. These are similar because they attract stable flies by alteration of light waves and capture the flies on sticky wraps covering the trap base. At an equine boarding facility, inherent attraction of the sticky wraps was compared by placing KS Tank wraps, a larger KS sticky wrap, and Olson sticky wraps around the propane tanks used with Mosquito Magnet Independence (MMI) traps. At an exotic animal rescue facility, two configurations of KS Tank wraps were applied to plastic barrels and compared with 3 KS traps.

Results: At the equine facility, the KS trap captured 3X more stable flies than the Olson trap. When the Olson trap base was covered with a KS sticky wrap, it captured 3X and 5X more stable flies than an Olson trap base covered with an Olson sticky wrap. At the equine boarding facility, KS Tank wraps


applied to LP tanks on MMI traps producing CO₂ captured significantly more stable flies and significantly more stable flies per cm₂ of sticky wrap than all other treatments. At the exotic animal rescue facility, stable flies captured by two of the KS traps and the two barrel treatments were numerically similar.

Conclusion & Significance: The KS Sticky wrap and the KS Tank wrap have a high degree of attraction to stable flies. The KS trap fits in tight places, and can be easily moved to desired locations.

Speaker Biography

Jerome A. Hogsette specialty is the biology, ecology and management of higher Diptera, particularly house flies and stable flies, in agricultural and urban settings. He has conducted numerous cooperative studies with USDA and university scientists, nationally and internationally, and has worked extensively with industry and with the military. His 1985 paper on stable fly long-range dispersal opened the door to continuing nation-wide research and debate on this topic. His work with light traps for house flies has changed the way that the pest control industry utilizes traps in restaurants and other buildings. Jerome has worked in many aspects of fly management, including trapping, development of and management with pesticides and Insect Growth Regulators, sanitation, biological control, attractants and repellents. He is the author or co-author of more than 200 refereed publications, review articles, book chapters and extension articles, and has mentored 25 graduate students.

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 Notes:

Anisakis infection in fish: An ecoparasitological study in different fishing grounds of the central-southern Adriatic Sea

Emy Costantini

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Anisakis parasites are widely detected in marine organisms and are responsible to cause a fish-borne zoonosis through the consumption of larvae in raw seafood. Due to either ancient or new trends in eating habits, a significant increase of Anisakiasis has occurred, including Italy. Because of its fame for being one of the most important fishery market worldwide, the need to create the “*Anisakis* risk’s map”, as suggested by EFSA, has become vital in order to guarantee an high food security for customers. Main aim of this study was to determine the distribution of *Anisakis* parasites in fish caught in different central-southern fishing grounds of the Adriatic Sea. Out of 2332 fish examined, composed of several commercial species, an overall prevalence of 8.1% for *Anisakis* larvae was detected. The results obtained were compared with data available for the northern Adriatic areas, which showed a total prevalence of 0.2%, in order to find possible correlations with environmental and ecological factors. As a result, the survey displayed notable differences among fishing grounds, with more parasites when moving southward. The differences were linked with

the hydrological, morphological and ecological features that distinguish the different parts of the Adriatic Sea and divide it into two ecosystems. The northern portion is defined as a coastal and eutrophic area, both for its shallow waters and for the Italian rivers that enter freshwater rich in nutrients. The central-southern portion, instead, is considered as an oceanic and oligotrophic ecosystem characterized by higher depth and salinity, as well as reduced nutrient loads from rivers. Consequently, these features strongly influence the distribution and abundance of *Anisakis*’ hosts involved in its biological cycle, leading to significant differences also in the distribution of larval stages of the parasite in marine fish populations.

Speaker Biography

Emy Costantini completed her Bachelor’s degree in Biology from University of Ferrara and Master’s degree in Marine Biology from University of Padua. She is a Team Supervisor & Researcher in Laboratory of Fish Pathology in University of Bologna.

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 Notes:

Genetic diversity, molecular markers and population genetics of human lymphatic filarial parasites

S L Hoti

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Lymphatic filariasis (LF) is one of the most disfiguring diseases and a major public health problem in tropical world. The disease is caused majorly by *Wuchereria bancrofti*, and to smaller extent by *Brugia malayi* and *B. timori*. It transmitted by mosquito vectors belonging to genera *Culex*, *Anopheles*, *Aedes* and/or *Mansonia*. Currently, LF is targeted for elimination with Mass Drug Administration of a combination of Diethyl carbamazine/Ivermectine and Albendazole as a tool. Several rounds of MDA have already been administered in several LF endemic countries. However, there is a continuance of parasite prevalence in some areas despite repeated rounds of MDA. This could be due to genetic variations in the parasite strains that may not be responding to the antifilarial drug administered. These variations could be the result of various factors such as geographic isolation, infra-population or refugia, environmental factors and drug pressure. The long term administration of drug in

the elimination programme itself might have lead to this phenomenon or wide geographic distribution spanning continents might have effected variation. Investigating genetic variations among these variants may reveal the differential response to the antifilarial drugs and such studies are important for devising the drug administration strategies. In summary, there is a need to understand the genetic variation among the parasite populations in different LF endemic areas for which there is a need to develop appropriate markers. This review discusses the biological, physiological and genetic variations among LF parasites.

Speaker Biography

S.L Hoti is currently working as Scientist-G and Director in charge in ICMR-National Institute of Traditional Medicine, India.

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 Notes:

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Relationship between parasites and performance in nutrias (*Myocastor coypus*) under intensive production system

Eva Tůmová

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Statement of the Problem: The nutria (*Myocastor coypus*) is a semiaquatic rodent indigenous to South America, and has been introduced around the world for fur and meat farming. Concerning the parasitological aspects, little data has been published in the literature of nutria farms. There is also lack of data regarding to relationship between parasites prevalence and performance of nutrias. The purpose of the study was to evaluate incidence of parasites in nutria farms in the Czech Republic, and then to compare performance of animals with a high and a low parasites occurrence.

Methodology & Theoretical Orientation: The study was conducted on 13 farms from which, feces samples were collected for three years. After analyses, the farms were divided into two groups, farms with a high respectively a low prevalence of parasites, where fertility and growth of young nutrias were evaluated.

Findings: The evaluation of the farms indicated infection with the following parasites: *Trichuris* sp., *Stryngyloides* sp., *Trichostrongylus* sp., *Eimeria seidelli*, *Eimeria nutriae*, *Eimeria coypi* and *Eimeria myopotami*; however, animals did not show clinical signs of the parasitic infections. In farms with the high parasites prevalence, litter size approximately

16% and number of weaned nutrias 18 % were lower than in farms with the low prevalence. Slaughter weight of young nutrias at the age of eight months was to 18% lower in males and 24 % in females from a group with a high prevalence of parasites.

Conclusion & Significance: The results of the present study indicate that even the farmed nutrias did not show clinical signs of parasitic infections, are a reservoir of parasites. A high prevalence of parasites decreases fertility and growth of nutrias. Therefore, it is important to pay an attention to prophylaxis in farms to reduce spreading of parasites and improve performance.

Speaker Biography

Eva Tumova works on interaction of genotype and environmental conditions, including nutrition, in poultry, rabbits and nutrias. Her recent research is oriented on the effect of quantitative feed restriction in chickens, rabbits and nutrias on digestive physiology and meat quality. She also conducts experiments with housing systems, oviposition and egg quality in laying hens. Her teaching activities are in Bachelor, Master and Doctoral programmes in poultry, rabbits and fur animal husbandry.

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 Notes:

The extended effects of *clomiphene citrate* on liver functions of mice offspring

Mohammed O Al-Jahdali and Wejdan M Henawi
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Infertility can cause considerable social, emotional and psychological stress. Ovulatory dysfunction is one of the most common causes of reproductive failure in sub-fertile and infertile women. There are several approaches to ovulation induction therapy for the management of women with ovulatory disorders. Fertility drugs are spreading worldwide fast and therefore many studies have reviewed the association between the use of these drugs and physiological, biochemical and histopathological alterations. The aim of the present study is to evaluate the effects of Clomiphene citrate (Clomid)[®] on albino mice offspring's liver functions. Treating mothers with CC doses 0.2 and 0.3 mg/day caused high significant increasing in liver enzymes GPT,

GOT and ALP. In conclusion, liver disorder was clearly noticed on the new offspring of the treated mothers with CC.

Speaker Biography

Mohammed O Al-Jahdali is the Professor of Ecological Physiology at King Abdulaziz University, Previous Dean of Science and Art College – Rabigh campus, Saudi Arabia. He did his PhD from the University of Alabama in 2003 and trained at Dauphin Island Sea Lab, Dauphin Island, AL USA. His Research interest is in manipulations of environmental parameters on physiological and ecological functions of biota at Rabigh lagoon at the red sea, Saudi Arabia, oceanography and marine ecology, environmental impact assessment studies, environmental pollution and pollutants, marine biology and organisms, ecological physiology of public health and pollution-related diseases and ecological physiology of reproduction and development

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 Notes:

Population parameters of *Tetranychus urticae* (Acari: Tetranychidae) on five rose varieties under laboratory conditions

Mostafa Haghani, Seyedeh Fatemeh Ranjbar, Amin Sedarati-Jahromi and Mojtaba Ghane-Jahromi
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Two-spotted spider mite (TSSM), *Tetranychus urticae* Koch, is one of the most important pests of greenhouse crops including rose varieties. The main aim of this research was to evaluate resistance of different rose varieties to *T. urticae*. Therefore, population parameters of TSSM on five rose varieties (Full house, Cherie brand, Yasie, Marina and Avalanzh) were estimated at $25\pm 1^\circ\text{C}$, $65\pm 5\%$ RH and a photoperiod of L16:D8 h. Rose varieties had significant effect on population parameters of *T. urticae*. The significantly highest and lowest value of intrinsic rate of increase (r_m) was recorded 0.380 and 0.255 day^{-1} on Yasie and Avalanzh, respectively. The recorded values for this parameter on Full house, Cherie and Marina were 0.354 , 0.368 and 0.331 day^{-1} , respectively. In addition, doubling time (DT) and mean generation time (T) had the highest values on Avalanzh (2.703 and 14.368 days, respectively) and the lowest values of these parameters were obtained on Yasie (1.801 and 9.867 days, respectively). Finite rate of increase (λ) on the above-mentioned varieties was determined 1.425 , 1.442 , 1.471 , 1.395 and 1.290 day^{-1} , respectively. Full house had

the highest value of net reproductive rate (R_0), (47.620 offspring). The lowest value of this parameter was shown on Marina and Avalanzh, 38.956 and 38.984 offspring, respectively. According to the results, Yasie is the most favorable and Avalanzh is the most resistant variety to the *T. urticae* than the other varieties. The results of this study indicated that rose variety is a factor which can significantly affect the population parameters of *T. urticae*. The findings of the present study could be useful to design a comprehensive IPM program for this pest on different rose varieties.

Speaker Biography

Mostafa Haghani is an Applied Entomologist with a strong interest in Population Ecology, Biological Control, Thermal Biology, Tritrophic Interactions, Integrated Pest Management and Crop Loss Assessment of insects and mites pests especially on protected crops (vegetable crops and ornamental flowers). He has enjoyed interactions with other researchers in many areas, especially the Population Ecology and IPM, which have given him opportunities to learn about these fields. He has done research on biological control of vegetable leaf miner using parasitoid wasps and efficiency of egg parasitoid *Trichogramma* on laboratory hosts.

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 Notes:

Comparison of individual and pooled urine samples for estimating the presence and intensity of *Schistosoma haematobium* infections at the population level

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Statement of the problem: We lack cost-effective diagnostic strategies to evaluate whether mass drug administration (MDA) programs to control *Schistosoma haematobium* progress as anticipated. The purpose of this study is to provide a proof-of-principle for examination of pooled urine samples as a strategy for rapid assessment of presence and intensity of *Schistosoma haematobium* infections at the population level.

Methodology: A total of 640 urine samples were collected from 520 school-aged children. Individual and pooled urine samples were screened using the filtration technique to determine the number of *S. haematobium* eggs in 10 ml of urine. Samples were pooled into pools of 5 ($n = 128$), 10 ($n = 64$) and 20 ($n = 32$) individual samples. The sensitivity and urine egg counts (UECs) of a pooled examination strategy was calculated for each pool size.

Findings: The sensitivity of a pooled examination strategy was 50.6% for pools of 5, 68.6% for pools of 10 and 63.3% for pools of 20. The sensitivity of a pooled examination strategy increased as a function of increasing mean UEC of the corresponding individual urine samples. For each of the three pool sizes, there was a significant positive correlation between mean UECs of individual and those

obtained in pooled samples (correlation coefficient: 0.81–0.93). Examination of pools of 5 provided significantly lower UECs compared to the individual examination strategy (3.9 eggs/10 ml urine versus 5.0 eggs/10 ml urine). For pools of 10 (4.4 eggs/10 ml) and 20 (4.2 eggs/10 ml), no significant difference in UECs was observed.

Conclusions: Examination of pooled urine samples applying urine filtration holds promise for rapid assessment of intensity of *S. haematobium* infections, but may fail to detect presence of infections when endemicity is low. Further investigation is required to determine when and how pooling can be optimally implemented in monitoring of MDA programs.

Speaker Biography

Abraham Degarege has several years' research experience on studying the epidemiology of malaria and helminth coinfection and evaluating the performance of different techniques for the diagnosis of helminth and Plasmodium parasites. His findings help to understand the nature of interaction between helminth and Plasmodium and improve diagnosis of helminth infection. His recent research on the diagnostic performance of the pooling techniques indicated new cost effective strategy for the rapid assessment of *Schistosoma haematobium* infections at a population level. This pooling strategy will help to evaluate whether the current mass deworming programs to control *Schistosoma haematobium* progress as anticipated.

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 Notes:

Prevalence of trematodes infection in pochards of genus *Aythya boie*, 1822 (Anseriformes: Anatidae: Aythyinae) in Sindh, Pakistan

Asma Kanwal Thebo, Saima Naz and Sajid Siyal
University of Sindh, Pakistan


Pochards are economically and ecologically important birds, maintaining the balance in food chain. These birds have been used as good source of food for thousands of years in various regions of world including Pakistan. The pochards harbor a good variety of parasites because of having a wide range of feeding habits. These birds are the intermediate hosts of many helminthic worms, which can be transferred into human or other vertebrates by feeding on them and cause severe infectious diseases. During endo-parasitic studies on the migratory birds in Sindh, Pakistan, total of 40 pochards were captured from the Hamal Lake, district Shahdad Kot during December 2016 to February, 2017. Out of 40, only 32 birds revealed positive with 80% prevalence of trematode in three species of birds, *Aythya ferina* (L.), *Aythya fuligula* (L.) and *Aythya nyroca* (Guldenstadt).

During examination of gut contents and visceral organs, 93 specimens of trematodes were recovered from intestine and other organs. 11 of *Aythya ferina* were examined in which eight went positive, 20 *Aythya fuligula* were examined in which 18 went positive and 09 *Aythya nyroca* were examined in which 06 went positive. The host wise prevalence of the 03 species of birds was calculated, with maximum infection in *A. fuligula* (90%) while the moderate prevalence of infection was recorded in *A. ferina* (72.75%) and minimum infection recorded in *A. nyroca* (66.66%).

Speaker Biography

Asma Kanwal is currently working as Professor at the University of Sindh, Pakistan.

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 Notes:

The effect of *Chromolaena odorata* (Siam weed) on the haematological profile and growth performance of rabbits reared in the tropics

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University of Benin, Nigeria


To evaluate the haematological indices and body weight of rabbits treated with *Chromolaena odorata* leaf meal (COLM), 64 rabbits consisting of 34 males and 30 females of mixed breeds, aged 6-8 weeks and weighing 400 g - 800 g were randomized into four diet groups of 0, 10, 20, and 30% in a completely randomized design for 56 days. Each treatment was replicated four times. Samples of blood were collected weekly from the ear vein for haematological studies and the growth study was determined using a weighing scale. Among all the haematological parameters evaluated in this study, red blood cell counts (RBC), white blood cell counts (WBC), platelets and lymphocytes showed significant ($P < 0.05$) difference. A progressive increase in the RBC and lymphocyte values were obtained up to the 10% COLM treatment group and thereafter a significant ($P < 0.05$) decline was observed at higher inclusion rate. The numerical values of hemoglobin and packed cell volume which correlates with RBC also showed an initial increase up to 10% followed by a decrease at higher COLM rate. WBC counts were significantly

($P < 0.05$) lower in rabbits fed with COLM than in the control. As the inclusion level of COLM increases, results of platelets showed a decreasing significant ($P < 0.05$) difference. All growth parameters studied showed a decreasing significant ($P < 0.05$) difference following higher COLM rate. These results revealed that COLM significantly decreased the growth and feed intake of rabbits but with an enhanced haematological traits at 10% inclusion level.

Speaker Biography

Imasuen J A had his education in Nigeria and Israel. His major area is Animal Physiology and Reproduction. To his credit he has over 30 academic articles published in both local and international journals. He is currently an Associate Professor in University of Benin, Faculty of Agriculture, Department of Animal Science in Nigeria, West of Africa. His main objective is to contribute to the development of the livestock sub-sector of the economy, assist in the production of animal protein and associated products. As well as create awareness about the environment and help in the overall improvement of the standard of living of people and development of Nigeria through local and international collaborative research, teaching and community development.

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 Notes:

Video Presentations October 31, 2017

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Occurrence of nematodes and trematode cercaria lymnea species of Danmadahun part of Jakara dam, Kano state Nigeria

Rabi Suraj Duwa

Nigeria Police Academy, Nigeria


Freshwater snails are important in the transmission of parasitic diseases. The different parts of Jakara dam harbor different species of snails but very few cercarias have been recovered until now. Most studies carried out on the dam focused only on the presence of snails and prevalence of infection among the communities surrounding the dam. Cercarias are the free swimming larval stage of flukes of schistosomiasis and Fascioliasis. So the knowledge of their presence is important in decreasing transmission. Different snails can carry the same type of cercaria and a single snail can carry more than one type of cercaria. Only cercariae were recovered in previous studies and in other parts of the dam. The occurrence of nematodes and cercaria in lymnea species are reported for the first time in Jakara dam. In this

seminar, the author will discuss the method the author has used to stimulate cercarial shedding and in the process encountering nematodes also.

Speaker Biography

Rabi Suraj Duwa has her expertise in schistosomiasis and snail intermediate hosts and has passion for improving the health and wellbeing of children suffering from schistosomiasis in Kano state. During one of her earlier researches she determined the prevalence of schistosomiasis and the efficacy of praziquantel in the treatment of schistosomiasis (PhD Thesis). As she visits the dam sites for snail intermediate hosts or schools to reassess the prevalence of schistosomiasis she helps to enlighten the pupils and visitors to the dam on the dangers of coming in contact with the polluted water. She has years of experience in research and teaching in a health institution (School of Health Technology) and the university (Nigeria Police Academy). Her previous work helped her to show why schistosomiasis is prevalent in Kano state and almost reaching an endemic state.

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