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Effect of Burma Padauk (*Plerocarpus indicus*), Rain Tree (*Samanea saman* (Jacg.) Merr.) and Siamese Rough Bush (*Streblus asper*) Leaves as Fiber Sources in Total Mixed Ration on *in vitro* Fermentation

S. Chumpawadee and O. Pimpa

The objective of this study was emphasized on effect of leaves as fiber sources in total mixed ration on *in vitro* fermentation using *in vitro* gas production technique. The experimental was designed in CRD with five replicates per treatment. The fiber sources in total mixed ration were corn cob (control group), Burma padauk leaves, rain tree leaves and Siamese rough bush leaves. The results showed that the kinetic of gas production and digestibility were statistical significantly differences among treatment ($p<0.05$). The corn cop as fiber source in total mixed ration gave the highest potential of extent of gas production. However, highest rate of gas production and digestibility were observed in the Siamese rough bush leaves as fiber source. Ruminal fermentation end-products consisted of ammonia nitrogen and volatile fatty acid were significantly differences among treatments ($p<0.05$). All treatment means were within the normal range. The pH values were relatively stable at 7.0-7.3. The results demonstrated that Burma padauk leaves, rain tree leaves and Siamese rough bush leaves can be used as fiber sources in total mixed ration. Importantly, leaves are abundant and available for feeding the ruminants in dry season. *(Asian Journal of Animal and Veterinary Advances 4 (1): 1-8, 2009; **doi:** 10.3923/ajava.2009.1.8)*

The Effect of Human Chorionic Gonadotropin on the Reproduction Performance in Lory Sheep Synchronized with Different Doses of Pregnant Mare Serum Gonadotrophin Outside the Breeding Season

M.M. Moeini, F. Alipour and A. Moghadam

Two experiments performed to determine the effects of different doses of PMSG and subsequent hCG treatment on the reproductive performance in estrus-induced mature Lory ewes. In first experiment 192 Lory anestrous ewes were divided into two groups and after synchronization with progestagen sponge (Fluorogestone acetate, 40 mg FGA) the ewes in first group (T_1) were injected 400IU PMSG and in second group (T_2) were injected 600 IU PMSG intramuscularly at sponge removal time. At insemination time (AI) time, ewes divided into 4 subgroups; T_1

and T_2h were injected 200 IU hCG and T_1C and T_2C were kept as the controls. In second experiment the effect of supplementing hCG at AI time or 12 days after AI were measured on the reproductive performance using 374 estrus-induced mature Lory ewes. After synchronization with progestagen sponge, all ewes were injected 400IU PMSG. The ewes then, were randomly divided into three groups: the ewes in (h_0) were injected 200 IU hCG at AI time, (h_{12}) were injected 200 IU hCG at day 12 after mating time and (C) were kept as the control group. Serums progesterone P4 concentrations were measured in days 12, 14 and 16 after AI in both experiments. The result of 1st experiment indicated that single lambs in T_1h subgroup had higher weight compared with T_1C subgroup at birth day ($p<0.05$). The prolificacy were higher in hCG treated groups compared with control ($p<0.05$). However, fertility did not differ significantly among subgroups. Mean weight of single lambs born was increased in T_1h compared with T_1C and T_1h subgroup had higher P4 concentration compared with T_1C subgroup ($p<0.05$). In Experiment 2; in comparison with control, the hCG increased prolificacy in h_0 treatment ($p<0.05$). Mean weight of lambs born was significantly increased in h_0 and h_{12} groups compared with control. The hCG increased P4 concentration in h_0 and h_{12} group and the h_{12} had higher P4 concentration compare with other groups ($p<0.05$). It can be concluded that hCG injection at AI time increased progesterone concentrations and subsequent could improve reproductive performance in Lory ewes but there were no differences between the ewes treated with 400 or 600 IU PMSG. *(Asian Journal of Animal and Veterinary Advances 4 (1): 9-15, 2009; **doi**: 10.3923/ajava.2009.9.15)*

Effects of Corticosterone Intake as Stress-Alternative Hormone on Broiler Chickens: Performance and Blood Parameters

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This study was conduced to determine effects of blood corticosterone (CS) increasing on some physiological parameters and performance of boiler chickens. To avoid treatment of birds with various forms of stress with administration of CS a model was developed to study of mimicked stress in chickens. Total 180 one-day old chicks of the cobb-500 strain from male sex were placed in 12 pens. CS at 4 levels (0, 10, 20 and 30 mg L^{-1}) in drinking water was provided *ad libitum* between 1 to 49 days of age. Continuous intake of CS for 49 days caused increasing in serum glucose, cholesterol, triglycerides, high and low density lipoprotein and mortality. Final body weight, total feed intake and abdominal fat deposition were decreased, whereas feed conversion ratio was constant. The

relative weights of major immunobiological organs including spleen, thymus and bursa of fabricius were decreased ($p<0.05$). Numerically, weights of selected visceral organs especially liver were elevation in all groups that received higher levels of CS. Therefore, it seems that CS intake is an alternative tool and useful test for assess the effects of physical, psychological and physiological stress in researches on broiler chickens. *(Asian Journal of Animal and Veterinary Advances 4 (1): 16-21, 2009; **doi:** 10.3923/ajava.2009.16.21)*

Changing of Cell Wall Fractions of Kermes Oak (*Quercus coccifera* L.) in a Vegetation Period and theirs Importance for Pure Hair Goat (*Capra hircus* L.) Breeding in West Mediterranean Region of Turkey

Ahmet Tolunay,Veysel Ayhan and Elif Adiyaman

This study was investigated the change occurring depending on the vegetation period in the Neutral Detergent Fiber (NDF), Acid Detergent Fiber (ADF), Acid Detergent Lignin (ADL), cellulose (CE) and hemicellulose (HEM) of feed fiber characteristics in samples taken in five periods from kermes oak (*Quercus coccifera* L.). According to the results of the research, the values obtained in the analysis conducted on the dry matter based the samples taken on May 15, June 15, July 15, August 15 and September 15, 2008 have been as follows: NDF values - 44.36, 56.05, 58.58, 59.83 and 60.71%; ADF values - 31.14, 39.94, 43.24, 47.49 and 48.03%; ADL values - 14.07, 19.37, 20.02, 24.33 and 24.35%; CE values - 17.06, 20.57, 23.22, 23.16 and 23.68% and HEM values - 13.22, 16.10, 15.33, 12.67 and 12.67% ($p<0.05$). The period when the kermes oak is best in terms of the quality of the feed is the month of June because the quality of the feed increases along with the increase in the NDF value. *(Asian Journal of Animal and Veterinary Advances 4 (1): 22-27, 2009; **doi:** 10.3923/ajava.2009.22.27)*

The Effect of Ambient Temperature on Thyroid Hormones Concentration and Histopathological Changes of Thyroid Gland in Cattle in Tabriz, Iran

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To identify the thyroid histological and hormonal changes in response to ambient temperature variations, thyroid glands and blood samples were randomly collected

from 800 indigenous corss-breed cattle of both sex and different age groups from municipal Tabriz slaughter house. The extent of fluctuations in triiodothyronine (T_3), thyroxin (T_4), T_3 uptake and thyroid histopathological lesions were scrutinized in 2 months in year 2007, viz., February (the coldest month) and August (the hottest month). A marked decline was discernable in T_3, T_4 and T_3 uptake in August compared to February. Out of 800 pairs of thyroid glands, 120 (15%) had lesions in which histopathological changes were categorized as follicular atrophy (2.5%), Paranchymal cyst (1.38%), colloid goiter (3.39%), follicular cell hyperplasia (0.27%), thyroid fibrosis(0.635%), focal hyperplastic goiter (0.88%), diffuse hyperplastic goiter additional paranchymal cyst (0.63%). Mean of thyroidal parameters for T_4, T_3 and T_3 uptake was lower in lesioned group ($p<0.01$). The frequency of lesioned thyroid was higher in summer than winter ($p<0.001$). The result of this study showed that high ambient temperature has profound effect on thyroid function, secretion and pathological changes in cattle. *(Asian Journal of Animal and Veterinary Advances 4 (1): 28-33, 2009;* ***doi:*** *10.3923/ajava.2009.28.33)*

Effect of Oestrus Synchronisation and Body Condition on Reproduction of Anoestrous Ouled Djellal Ewes

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The objective of this study was to determine the effects of progestagen treatment administrated alone or coupled to an injection of eCG to synchronize oestrus on sheep reproductive traits during the anoestrus season under extensive management conditions of Algeria. Two flocks differing by level of body condition score were used. Fertility rates of treated groups, when compared to control groups, were higher for ewes matted at lean body condition (0.45-0.47 versus 0.10), whereas ewes matted at moderate body condition recorded higher performance during first estrus (0.37-0.45 versus 0.10) and comparable fertility rate for all mating period. Higher prolificacy rates were performed in synchronized groups of poor body condition (1.38 versus 1.00) when compared to control group. For moderate body condition flock, if progesterone and eCG treated ewes performed higher level of litter size than do control ewes (1.54 versus 1.20) for first estrus, prolificacy rate was similar between all groups for all mating period. Extra lambs weaned were significant for lean body condition synchronized groups (0.45) and for moderate body condition progestagen-gonadotropin treated group (0.33). Results indicated that it is possible to increase extra lambs weaned in anestrous Ouled Djellal ewes after artificially induced oestrus. *(Asian Journal of Animal and Veterinary Advances 4 (1): 34-40, 2009;* ***doi:*** *10.3923/ajava.2009.34.40)*

Investigation of the Effects of Carrying Heavy Load on Prooxidation/ Antioxidant Status and Vitamin D_3 in Healthy Horses

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The aim of the study was to investigate the effect of carrying heavy load for a long time on lipid peroxidation (MDA: malondialdehyde), NO_2 (nitrite), NO_3(nitrate), antioxidants (GSH: reduced glutathione, retinol, α-tocopherol) and vitamin D_3 in healthy horses. Blood samples from seventeen native 3-5 years age and 450-500 kg live weight Anatolian horses carried a load which comprised at least 30% of their body weight and for 4 h on mountainous terrain (hard working) were evaluated. Blood samples were collected in the morning before the animals started to carrying load and immediately after they finished carrying (working). It is observed that the level of MDA, NO_2 and NO_3 increased significantly ($p<0.05$) after working. While GSH concentration, increased after working; levels of retinol, α-tocopherol and vitamin D_3 levels decreased significantly ($p<0.05$). On the other hand, the vitamin D_3 levels were affected by hard working as other lipid soluble vitamins. There were a correlation between the physiological response to hard-working and some oxidant markers in healthy-hard working horses. These observations provide evidence that hard-working increases oxygen consumption and cause a disturbance of intracellular pro-oxidant-antioxidant homeostasis. *(Asian Journal of Animal and Veterinary Advances 4 (1): 41-46, 2009;* ***doi:*** *10.3923/ajava.2009.41.46)*

The Case Report of Taillessness in Iranian Female Calf (A Congenital Abnormality)

Alireza Lotfi and Habib Aghdam Shahryar

The aim of this study, is case report of taillessness abnormality in Iranian calves. Taillessness syndrome can be a lethal attribute in animals. In a village in the suburbs of Tabriz, a Northwestern city in Iran, a tailless calf was born. During the examinations and observations, no problem in digestion and faeces excretion was noticed and the calf had a normal growth. There was a small excrescence on the back of the calf where the tail grows. In this recent case, there was no rectal adhesion. The aforementioned calf was born through the Artificial Insemination (AI) of a native female cow with a Holstein bull. The cow is completely healthy

and in her previous parturitions, it has given birth to several healthy calves. Comparing this case with the other reported abnormalities reveals that this anomaly is rare and the probability of its occurrence in female calves of dairy cattle is twice the probability of occurrence in male calves. Most scientific reports have shown that tail abnormalities occur when a native cattle is inseminated with a pure breed cattle such as Holstein. Future study about genetical reasons of Taillessness in native calves may help to solving of this problem, especially in Iranian hybrid (Holstein-native) cattle. *(Asian Journal of Animal and Veterinary Advances 4 (1): 47-51, 2009; **doi:** 10.3923/ajava.2009.47.51)*

General Performance of Growing Shami Kids Fed High Energy and Protected Methionine

M. Abdelrahman

This experiment was carried out to evaluate the effect of high dietary energy and protected methionine (Smartamine)™ on the growth, feed intake and efficiency and mineral concentrations in blood serum and tissues of shami kids during finishing stage. Fifteen growing shami kids (3 to 4 month old) were distributed equally to three treatments groups as follow: Control (NRC requirements); T_1 (High energy 3.0 Mcal ME kg^{-1}) and T_2 (high energy 3.0 Mcal ME kg^{-1} and 5 g/head/day methionine as Smartamine). Treatment causes a significant change ($p<0.05$) on monthly and overall weight gain. Feeding shami kids high energy significantly increased weight gain, lower feed intake and consequently improve feed conversion. A significantly lower concentrate and alfalfa hay intake were reported in Shami kids fed high energy and protected methionine (T_2) when compared with kids from the control and T_1. Moreover, dressing and tissues percentages were not significantly affected ($p>0.05$) by treatment, except testicales which was significantly reduced in kids from T_2. Magnesium and Cu concentrations in meat were significantly increased ($p<0.05$) in kids fed high energy and methionine when compared with the control. On the other hand, the inorganic matter percentages were significantly reduced with feeding high energy (T_1) and high energy with methionine (T_2) when compared with the control group. In conclusion, feeding shami kid during the finishing period with high levels of energy improves the total weight gain and total feed conversion. Furthermore, methionine supplementation as Smartamine didn't affect shami kids performance, which means the energy requirements by Shami kids during finishing period is above the recommended levels in NRC for goats. *(Asian Journal of Animal and Veterinary Advances 4 (2): 52-59, 2009; **doi:** 10.3923/ajava.2009.52.59)*

Effect of Herd Size on Sustainability of Dairy Production

V. Demircan and T. Binici

Data obtained by conducting a survey on 132 dairy farms selected by the stratified random sampling method was used to assess effect of farm size on Cultural Energy (CE) expenditure of dairy cattle production. Dairy cattle farms were divided into three groups according to farm size. Accordingly farm groups were assigned as group 1 (farms that had 1-2 lactating cows, 53 farms), group 2 (farms that had 3-5 lactating cows, 51 farms) and group 3 (farms that had more than 5 lactating cows, 28 farms). Total cultural energy expended included cultural energy expended on feed, dairy operations, transportation, machinery and equipment. Cultural energy expended on feed was similar for farm groups ($p>0.05$) and it constituted more than half of the total cultural energy. As farm size increased cultural energy required producing a kg of milk decreased and group 3 had lower CE requirement than other farm groups ($p<0.05$). Cultural energy expended (Mcal) per Mcal protein energy output was lowest for group 3 ($p<0.05$). Efficiency defined as Mcal input/Mcal output was better for group 3 and differed from other farm groups ($p<0.05$). Results show that as farm size increases efficiency of converting cultural energy into milk increases. Thus in order to be more sustainable in dairying farm size should be increased without interfering cattle performance. *(Asian Journal of Animal and Veterinary Advances 4 (2): 60-65, 2009;* ***doi:*** *10.3923/ajava.2009.60.65)*

Transcriptional Profiling of Spleen Lymphocyte in Fowl Typhoid of Broilers

H.K. Lim, K. Choi, P.K. Mandal, O. Baatartsogt, C.H. Lee, J.H. Lee and H.B. Kim

This study was carried out to investigate the differentially expressed genome between *S. gallinarum* infected and uninfected control in the spleen lymphocytes of Ross broiler chicks using microarray analysis. GeneChip Chicken Genome Array containing 32,773 transcripts corresponding to over 28,000 chicken genes for simultaneous expression was used. The signal intensity of each gene was normalized and expressed in fold change. A large numbers of genes were found with differential expression majority of which are still unknown in chicken genome. Thirty one known genes were found to have differential expression of which, 25 were up-regulated and 5 were down regulated. Majority of the up-regulated

genes belong to immune response system *viz.*, IL8, IL1B, IL10, IL18, IL17A, IL15, transferrin, IFNg, TLR2, TNFRSF1b, TNFRSF15 and the down regulated genes were B-FIV, B-LA, SDF1, B-LBI, belonging to MHC-I and II and CD1d. To validate the expression of these genes RT-PCR was done using primers of 12 selected genes' with total mRNA isolated from spleen lymphocytes which has confirmed the similar pattern of expression of all the genes as in microarray. The findings in this study have lead to the identification of novel genes which may be useful in further studies to understand the patho-physiology of fowl typhoid towards development of diagnostics and therapeutics. *(Asian Journal of Animal and Veterinary Advances 4 (2): 66-75, 2009;* ***doi:*** *10.3923/ajava.2009.66.75)*

Influence of Two Sources of Cereals (Corn or Barley), in Free Choice Feeding on Diet Selection, Milk Production Indices and Gaseous Products (CH_4 and CO_2) in Lactating Sheep

Sabri Yurtseven and Irfan Öztürk

This study was performed to evaluate the effect of different cereal source in choice feeding systems on performance and on emission of carbon dioxide (CO_2) and enteric methane (CH_4) in dairy Awassi ewes. Total 16 dairy ewes were divided into two groups: the corn based free choice (CFC) group received feed ingredients separately (corn, wheat bran, soybean meal (SBM), cottonseed meal (CSM) and alfalfa hay) and the barley based free choice group (BFC) group received barley instead of corn as carbon hydrate source. The results showed no significant differences ($p>0.05$) between treatments in live weight, live weight gain, milk yield, milk composition and CO_2 production. However, the results of CH_4 measurement indicated significant differences between groups in the amounts of CH_4 produced. The ewes in the CFC group produced less CH_4 than the ewes that received the BFC system (CFC: 21.82; BFC: 38.34 g/day/sheep). The results indicate that the CFC system modified ruminal fermentation and affected the Volatile Fatty Acid (VFA) components and levels in ruminal fluid. In ewes on the CFC system, the level of propionate was greatly increased (CFC: 19.77 vs. BFC: 14.53%) and the level of acetate decreased (CFC: 68.34 vs. BFC: 75.58%). Butyrate level was not changed relative to the total VFA components. There were no significant differences in ruminal pH level between treatments. The results indicate that the CFC system has a potential mitigating effect on enteric emission of CH_4 but not CO_2. *(Asian Journal of Animal and Veterinary Advances 4 (2): 76-85, 2009;* ***doi:*** *10.3923/ajava.2009.76.85)*

Effects of Green Tea on Mineral Levels of Liver and Testis of Guinea Pigs Electromagnetic Field Emitted by Mobil Phones

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It was reported that the effects of green tea on the mineral levels of testis and liver of Guinea pigs exposed to a 900 MHz electromagnetic field. Four experimental groups labeled as controls (Group A), irradiated (Group B), irradiated receiving green tea extract (Group C) and green tea only (Group D) were formed with seven randomly chosen animals of both sexes in each group. After exposure for one month, the animals were sacrificed by decapitation and testis and liver samples were collected for biochemical analysis. In female Guinea pigs irradiation with and without green tea as well as green tea alone caused significant changes of the iron levels in liver, but no significant changes of manganese, copper, zinc and the copper/zinc ratio. In males, irradiation caused significant increases of manganese and a decrease of the iron levels in liver and of manganese, copper, zinc in testis. Combined with green tea, electromagnetic radiation resulted in changes of manganese, iron, copper and copper/zinc ratio in liver and of manganese only in testis. Green tea alone changed the levels of hepatic iron, zinc and copper/zinc ratio and of testicular concentrations of iron and zinc. The highest levels of copper were found in the liver tissue of the irradiated animals that were also treated with green tea. From present findings we can state that testis tissue is more sensitive to electromagnetic radiation than liver tissue, showing greater changes in trace mineral metabolism. Green tea brings the trace element levels to near normal values; supporting the idea that green tea as a supplement has a protective effect against the damaging effects of electromagnetic radiation. *(Asian Journal of Animal and Veterinary Advances 4 (2): 86-92, 2009;* ***doi:*** *10.3923/ajava.2009.86.92)*

Detection of Avian Influenza Virus Antigen in Chicken Tissues Following Intranasal Inoculation

Mohammad Mehdi Hadipour

To understanding the pathogenicity of H9N2 in broiler chickens, the tissue distribution of viral antigen following intranasal (IN) inoculation of this subtype was studied. Eighteen 3-week-old chickens were inoculated with $10^6 EID_{50}$ per bird with H9N2 avian influenza virus. Then on days 1, 2, 4, 6, 8 and 11 post-inoculation (PI) samples of the trachea, lung, liver, pancreas, spleen, thymus, duodenum, kidney, brain and bursa of Fabricius were collected for immunofluorescence study. The AIV antigen was detected in the trachea, lung and

kidney of inoculated chickens using indirect immunofluorescence technique. The results indicated that the H9N2 avian influenza virus is epitheliotropic in chicken. After IN inoculation it has tissue tropism for trachea, lung (pneumotropic) and kidney (nephrotropic). *(Asian Journal of Animal and Veterinary Advances 4 (2): 93-98, 2009;* ***doi:*** *10.3923/ajava.2009.93.98)*

The Effects of Different Vegetation Periods on Chemical Composition of Kermes Oak (*Quercus coccifera* L.)

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This study investigates the effect of different vegetation periods on the chemical composition of kermes oak. Five different vegetation periods from May through September 2008 were taken into consideration for this purpose. Throughout these periods, values for dry matter, crude protein, crude lipid, crude fiber, nitrogen-free extracts, crude ash and metabolizable energy were measured. The chemical composition of kermes oak underwent statistically significant changes in connection with the vegetation period ($p<0.05$). During the May, June, July, August and September periods, the natural dry matter content of kermes oak was found to be 43.26, 53.83, 56.85, 57.35 and 57.95%, respectively. During the same periods, values for crude protein with respect to dry matter were 1.27, 1.20, 1.29, 1.47 and 1.59%, respectively, values for crude lipid were 4.37, 3.95, 3.47, 2.69 and 3.73%, respectively, values for crude fiber were 20.88, 30.91, 35.53, 37.21 and 37.08%, respectively, values for nitrogen free extracts were 69.48, 59.98, 55.45, 55.57 and 54.35%, respectively, values for crude ash were 3.99, 3.95, 4.22, 3.05 and 3.25%, respectively and values for metabolizable energy were 3191.65, 3149.65, 3129.35, 3119.92 and 3124.15 kcal kg^{-1}, respectively. In conclusion, it was determined that the chemical composition of kermes oak underwent changes in connection with the vegetation period and that, in particular, as the vegetation period advanced, the crude fiber content increased and nitrogen-free extracts decreased. *(Asian Journal of Animal and Veterinary Advances 4 (2): 99-103, 2009;* ***doi:*** *10.3923/ajava.2009.99.103)*

Determination and Comparison of Nutritional Indices in Commercial Silkworm Hybrids during Various Instars

Alireza Seidavi

The aim of the present study was generate data on *Bombyx mori* feeding and nutritional indices and characteristics during 1st-5th larval instars and comparison

of these parameters among eight commercial hybrids. All insect rearing and experiments were done under special laboratory conditions. The several parameters such as quantity of food consumed, fecal matter excreted and larval growth was determined based on fresh (wet) and dry weight. The experiment was set in a completely randomized design. Also, evaluation index value and sub-ordinate function value were calculated for nutritional indices. From obtained results, gain for total instars (1-5 instars) was maximal in 104×103 (0.67 g DM/larva) and minimum in 151×154 (0.56 g DM/larva). In all the hybrids, ingested food for total larval duration was observed to be above 5.8 g DM/larva. Highest food consumption was recorded in 31×32 (6.31 g DM/larva) followed by 32×31 (6.30 g DM/larva) and 104×103 (6.22 g DM/larva), whereas lowest was recorded in 151×154 (5.80 g DM/larva) followed by 154×151 (5.82 g DM/larva). ECI for total instars (1-5 instars) was maximal in 151×154 (10.35) and minimum in 153×154 (8.37). In all larval duration, approximate digestibility was observed to be above 0.47. Highest AD was recorded in 154×151 (0.507) followed by 153×154 (0.505) and 31×32 (0.504), whereas lowest was recorded in 104×103 (0.475) followed by 103×104 (0.476). After evaluation by both the statistical methods (evaluation index method and sub-ordinate function method), hybrids of 31×32, 104×103 and 32×31 were identified as potential hybrids for further development at distribution between farmers. *(Asian Journal of Animal and Veterinary Advances, 4 (3): 104-113, 2009;* ***doi:*** *10.3923/ajava.2009.104.113)*

Seroprevalence of Q Fever in Cattle and Sheep in the East of Turkey

Ebubekir Ceylan, Mustafa Berktas, Ihsan Keleş and Zahit Ağaoğlu

The present study was carried out to determine the seroprevalence of antibodies to *C. burnetii* in cattle and sheep in the east of Turkey. Serum samples collected randomly from 92 cattle and 92 sheep were examined by ELISA (Vircell-SL, Spain) to detect IgG antibodies against *C. burnetii* phase II antigen. Seropositivity was observed in 16.3% of the cattle and in 5.4% of the sheep. Coxiellosis has an important seropositivity in both cattle and sheep and it can cause serious health problem in humans living in Eastern Turkey. *(Asian Journal of Animal and Veterinary Advances, 4 (3): 114-121, 2009;* ***doi:*** *10.3923/ajava.2009.114.121)*

Modeling Lactation Curves of Turkish Saanen and Bornova Goats

Çiğdem Takma, Yavuz Akbaş and Turgay Taskin

Lactation curves of 23 Bornova (25% White German×25% Maltase×50% Anglo-Nubian crossbreed) and 37 Turkish Saanen dairy goats were estimated in this study. Individual 427 test-day milk yields were recorded monthly from lambing to drying off. The Wood (WD) and Cobby and Le Du (CL) models were applied to estimate lactation curve parameters of the two breeds. The WD model had greater a parameter (average milk yield at the beginning of the lactation) than CL model. The difference between breeds was significant ($p<0.05$) for the b parameter related to slope up to peak yield. The two models estimated significantly different pattern of the decline in milk production. Coefficient of determination values (R^2) of the models were high and ranged from 0.83 to 0.91. The CL model showed better performance than WD model. Lactation curve characteristics including Peak Yield (PY), Time to Peak Yield (TPY), Total Milk Yields (TMY) and Persistency (P) were also estimated using WD, CL and Fleischmann (FL) methods. WD and CL models forecasted higher PY and earlier TPY in comparison with the FL. TMY and P from two models were lower than those from FL. The effect of breed was significant ($p<0.05$) on TPY. Correlation coefficients among lactation curve characteristics were ranged from -0.29 to 0.78. The results suggest that CL model was better for the fitting of the test-day milk yields of Turkish Saanen and Bornova goats. *(Asian Journal of Animal and Veterinary Advances, 4 (3): 122-129, 2009;* ***doi:*** *10.3923/ajava.2009.122.129)*

Allelic Frequencies of a *Sac*II RFLP at Exon 7 of the β-lactoglobulin Gene in Turkish Hair Goat Breed

C. Elmaci, Y. Oner and M. Koyuncu

Polymorphism in the exon 7 to the 3' flanking region of β-lactoglobulin (β-lg) gene in Turkish hair goat populations were investigated. The study was carried out including 233 hair goats using PCR-RFLP. Digestion of amplification product with *Sac*II restriction enzyme revealed two alleles namely S_1 and S_2 (which was produced by a single nucleotide substitution) and three genotypes (S_1S_1, S_1S_2 and S_2S_2) in the studied population. The genotypic frequencies of S_1S_1 and S_1S_2 were almost equal. S_2S_2 genotype was found to be lower than other genotypes (S_1S_1

and S_1S_2) in the studied population. The allele frequencies of S_1 and S_2 at β-lg locus were 0.67 and 0.33 in hair goat population, respectively. Deviation from Hardy-Weinberg equilibrium was not detected. *(Asian Journal of Animal and Veterinary Advances, 4 (3): 130-133, 2009;* ***doi:*** *10.3923/ajava.2009.130.133)*

The Efficacy of Moxidectin Against Gastrointestinal Nematode Infections in Goats

C. Ragbetli, E. Ceylan and P. Tanritanir

The aim of this study was to examine the efficacy of moxidectin treatment on goats naturally infected with gastrointestinal nematodes in Van region, Turkey. Two hundred and forty goats infected with gasterointestinal parasites were treated with 0.2 mg kg^{-1} moxidectin (Cydectin, Abfar), subcutaneously. Ten randomly selected goats were not treated and allocated as a control group. Faecal samples were examined for gastrointestinal parasites qualitatively and quantitatively (EPG) in 0th, 7th and 14th days of treatment. Larvae of the parasite species of *Ostertagia*, *Haemonchus*, *Nematodirus* and *Trichostrongylus* were detected in the coprocultures of the infected animals performed before treatment. It was observed that moxidectin was 100% effective against the gastrointestinal ematodes. *(Asian Journal of Animal and Veterinary Advances, 4 (3): 134-138, 2009;* ***doi:*** *10.3923/ajava.2009.134.138)*

Effects of Dietary Ascorbic Acid Supplementation on Growth Performance, Carcass, Bone Quality and Blood Parameters in Broilers During Natural Summer Temperature

Y. Konca, F. Kirkpinar, S. Mert and S. Yurtseven

This experiment was conducted to determine dietary supplementation of ascorbic acid (ASA) on the performance, carcass, bone traits and, some serum indices of broilers. A total of 180 day-old chicks were distributed into 3 treatment groups with 6 replicate containing 10 chicks each. The experimental diets were: (1) control, no dietary ASA supplementation (ASA0), (2) dietary ASA supplementation 150 mg kg^{-1} (ASA150) of diet and (3) 300 mg kg^{-1} of diet (ASA300). The experiment was lasted up to 42 days of age. Dietary ASA did not affect body weight and gain and feed conversion ratio but quadratically changed daily feed intake of broilers at 21-42 and 0-42 days of age ($p<0.05$). The carcass

and parts yields, dry matter, crude protein and pH of meat and bone traits were not affected ($p>0.05$) but crude fat and thigh meat colour were linearly changed ($p<0.05$) by the dietary supplement. Dietary ASA supplementation quadratically changed the serum alanine aminotransferase and linearly decreased aspartate amino transferase ($p<0.05$) but did not affect other serum constituents. To conclude, dietary ASA supplementation have some beneficial effects on broiler meat composition and colour and serum AST and ALT levels during natural summer temperature. *(Asian Journal of Animal and Veterinary Advances, 4 (3): 139-147, 2009;* ***doi:*** *10.3923/ajava.2009.139.147)*

Biomarkers Identified by Proteomic Study of Spleen Lymphocyte from Broilers Infected with *Salmonella gallinarum* after Feeding Korean Mistletoe (*Viscum album coloratum)*

Hyun-Kyung So, P.K. Mandal, O. Baatartsogt, Hee-Kyong Lim, Chi-Ho Lee, Jun-Heon Lee and Kangduk Choi

To find the alternative for antibiotic this study was carried out to investigate the differentially expressed proteome between *Salmonella gallinarum* infected and uninfected control in the spleen lymphocytes of ROS broiler chicks fed with Korean mistletoe using proteomic approach. Total four protein spots were detected with differential expression from the chicken spleen lymphocyte in 2DE gels after silver staining. These proteins were characterized by MALDI-TOF MS and MS/MS. Two known proteins were up-regulated *viz.*, Fatty Acid Binding Protein (FABP) and MRP-126 and 2 proteins were down regulated *viz.*, ribosomal protein12, pyruvate kinase. In this experimental fowl typhoid infection in broilers fed with Korean mistletoe through proteomics approach significant differential expression of four proteins were found which appears to be candidate molecules for fowl typhoid. *(Asian Journal of Animal and Veterinary Advances, 4 (3): 148-159, 2009;* ***doi:*** *10.3923/ajava.2009.148.159)*

Effects of Microbial Phytase on Animal Performance, Amount of Phosphorus Excreted and Blood Parameters in Broiler Fed Low Non-Phytate Phosphorus Diets

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The aim of the current study was to evaluate the effects of a microbial phytase on broiler performance, mineral retention and mineral excretion in broilers fed corn-soybean meal-barley based diet with low available phosphorus level. A total

of 300 one day-old Ross 308 broilers were allotted into 5 treatment groups consisted of 4 subgroups. This basal diet (negative control) was supplemented with enzyme (Rovabio; control). Then, control diet was supplemented with 500 g ton^{-1} microbial phytase (Rovaphos; 500 g phytase), 1000 g ton^{-1} microbial phytase (1000 g phytase) and 1500 g ton^{-1} microbial phytase (1500 g phytase). Body weight of broiler fed low available phosphorus diets supplemented with phytase were significantly higher ($p<0.05$) compared with broilers fed low available phosphorus diet without phytase throughout the experiment starting from second week of experiment. Broilers fed negative control diet had significantly less carcass weights compared with other groups ($p<0.05$). Addition of phytase linearly increased serum P levels and decreased amount of P excreted in feces. It can be concluded that dietary available phosphorus can be reduced up to 30% in broiler diet with 1000 g phytase/ton supplementation without affecting animal performance. *(Asian Journal of Animal and Veterinary Advances, 4 (3): 160-166, 2009;* ***doi:*** *10.3923/ajava.2009.160.166)*

Determination of Silage Quality, Herbage and Hay Yield of Different Triticale Cultivars

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This study was carried out to determine silage quality, herbage and hay yield of different triticale cultivars (Tacettinbey, Tatlicak-97 and Karma-2000). In the research, besides herbage and hay yield of triticale cultivars, dry matter, organic matter, crude protein, crude lipid, crude fiber, nitrogen-free extract and crude ash, silage pH, flieg point, metabolizable energy and physical quality of triticale silage were examined. Among the cultivars, while the highest herbage yield (22860 kg ha^{-1}), hay yield (14270 kg ha^{-1}), dry matter (43.4%), crude protein content (8.3%), crude lipid (2.91%), crude fiber (27.1%), flieg point (127.8) and the best pH value (4.1) were observed in Karma-2000 cultivar, physical characteristics such as smell, structure and color of the cultivars were similar among cultivars. *(Asian Journal of Animal and Veterinary Advances, 4 (3): 167-171, 2009;* ***doi:*** *10.3923/ajava.2009.167.171)*

The Significance of Vasoactive Intestinal Peptide in the Treatment of *Schistosoma mansoni*-Infected Diabetic Mice

Osama M. Ahmed and Gamal Allam

The effect of Vasoactive Intestinal Peptide (VIP) on Insulin Dependent Diabetes Mellitus (IDDM) and schistosomiasis together in combination has not been

previously investigated. To assess its efficacy in such condition, VIP was administered to *Schistosoma mansoni*-infected streptozotocin-induced diabetic (ID) mice at a dose level of 41.6 ng kg^{-1} b.wt., 3 times/week, for 8 consecutive weeks starting from the 1st week of infection. The administration of VIP to ID mice induced a potential amelioration of serum glucose, insulin and C-peptide levels indicating the insulinogenic effect of this peptide. VIP also produced a significant decrease of hepatic granuloma volume and worm fecundity in the ID mice without affecting worm burden. The granuloma volume was found to be lower in the ID mice as compared to that of the infected non-diabetic ones. VIP administration produced marked decreases of the elevated liver collagen, serum carbohydrate antigen (CA.19.9) and liver alpha fetoprotein (AFP) content of ID mice as well as it succeeded, at least partially, to alleviate the altered liver enzyme activities. It also successfully increased the anti-inflammatory cytokine, IL-10 and decreased the elevated pro-inflammatory chemokines, IL-12 and TNF-α level in the serum of ID mice. These changes in cytokines explain the decrease in hepatic granuloma volume and reflect the anti-inflammatory effects of VIP. The increased oxidative stress markers and perturbed antioxidant defense system were profoundly improved in the ID mice treated with VIP. In conclusion, the VIP may have anti-hyperglycemic and insulinotropic effects, decrease liver and intestinal egg count and ameliorate liver pathologic deteriorations via its immunomodulatory effects on cytokines released from macrophages and T helper cells in addition to its improvement effect on the antioxidant defense system of the infected diabetic mice. *(Asian Journal of Animal and Veterinary Advances 4 (4): 172-190, 2009;* ***doi:*** *10.3923/ajava.2009.172.190)*

Evaluation of a Mixture of Thiopental-Guafinesine-Metedomidine and Sevoflurane Anesthesia in Horses

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The anesthetic and cardiopulmonary effects of a combination of continuous intravenous infusion using a mixture of 6 g L^{-1} thiopental-75 g L^{-1} guafinesine-3 mg L^{-1} metedomidine (0.30 mL/kg/h) and Oxygen-Sevoflurane (OS) anesthesia (TGM-OS anesthesia) in horses were evaluated. The concentration of sevoflurane (Sevo) required maintaining surgical anesthesia was around 1.5% in TGM-OS and 3.3% in OS anesthesia. Mean Arterial Blood Pressure (MABP) was maintained at around 77 mm Hg under TGM-OS anesthesia, while dobutamine (0.43±0.13 μg kg^{-1}) infusion was necessary to maintain MABP at 60 mmHg

under OS anesthesia. No apparent complication was observed during and after anesthesia in all cases. Recovery from anesthesia under TGM-OS anesthesia was very calm and smooth. The times required for the horse to return both sternal and standing position in group under TGM-OS anesthesia tended to be shorter than group under OS anesthesia which statistical differences were $p<0.05$ and $p<0.01$, respectively. Thiopental Guafinesine-Metedomidine and Oxygen-Sevoflurane anesthesia (TGM-OS anesthesia) may be useful for prolonged equine anesthesia because of its minimal cardiopulmonary effects and good recovery from anesthesia. *(Asian Journal of Animal and Veterinary Advances 4 (4): 191-199, 2009; **doi:** 10.3923/ajava.2009.191.199)*

In situ Rumen Degradability, *in vitro* Digestibility and *in vitro* Gas Production of Full Fat Canola Seeds

U. Kilic and A.V. Garipoglu

The objective of this study was to determine the chemical composition, *in vitro* gas production, *in vitro* digestibility and *in situ* rumen degradability of canola hybrids. In the study, canola seeds of four different hybrids (Bristol, Eurol, Capitol and Licrown), which were obtained from the Institute of Karadeniz Agricultural Research in Samsun, Turkiye were used. Two rams aged 2 years with permanent ruminal fistulated were used in gas production and *in situ* nylon bag techniques. All of the feedstuffs were incubated for 3, 6, 9, 12, 24, 48, 72 and 96 h in *in vitro* incubations for gas production. Feedstuffs were incubated for 48 h in nylon bag technique. The results of the present study suggested that there were no differences among the hybrids in terms of feed value. All of the hybrids had low *in vitro* gas production values due to their high fat contents. Licrown variety had the lowest production level up to 48 h of the incubation, but there were no differences after 24 h of the incubation ($p>0.05$). There were not significant differences among the hybrids in terms of estimated parameters except for gas production rate (c). The gas production rate of Licrown was significantly ($p<0.05$) lower than that of Bristol. While, *in vitro* enzyme digestibility Dry Matter Digestibility (DMD), Organic Matter Digestibility (OMD) and Metabolisable Energy (ME)) was not different among the hybrids ($p>0.05$), rumen degradabilities Dry Matter Degradability (DMD_{48}), Organic Matter Degradability (OMD_{48}) and Crude krotein Degradability (CPD_{48}) were significantly different ($p<0.01$). *(Asian Journal of Animal and Veterinary Advances 4 (4): 200-208, 2009; **doi:** 10.3923/ajava.2009.200.208)*

Comparative Study of Fatty Acid Composition of Golden Mullet Fillet and Roe Oil (*Liza aurata* Risso, 1810)

Masoud Hedayatifard

In the present study, the fatty acid compositions of golden mullet fillet and roe oil were determined. Palmitic acid (C16:0) was the dominant saturated fatty acid in golden mullet fillet and roe oil with 14.39 and 6.45%, respectively. The major unsaturated fatty acids of golden mullet fillet oil, were detected as palmitoleic acid (C16:1, 17.32%), oleic acid (C18:1, 17.09%) and α-linolenic acid (C18:3, 8.72%). The most abundant unsaturated fatty acids of roe oil were determined as palmitoleic (C16:1, 21.33%), oleic (C18:1, 19.51%), α-linolenic (C18:3, 7.34%), Linoleic acid (C18:2, 6.77%) and docasahexaenoic acid (C22:6, 6.35%). The total unsaturated fatty acids of roe oil (68.59%) were higher than that of golden mullet fillet oil (56.37%). Amounts of ω-3 unsaturated fatty acids in the roe and fillet oil were 19.52 and 14.51%, respectively. Furthermore, the total amounts of eicosapentaenoic acid (C20:5) and docasahexaenoic acid (C22: 6) of roe oil were nearly 2 times higher than those of the golden mullet fillet. Further, the lipid percentage and the amounts of C14:0, C16:0, C18:2, C18:3, C20:5 and C22:6 fatty acids differed significantly ($p<0.05$) between fillet and roe oil. In addition, significant differences were observed among ω-3 and ω-6 series between both fillet and roe oil. *(Asian Journal of Animal and Veterinary Advances 4 (4): 209-213, 2009;* ***doi:*** *10.3923/ajava.2009.209.213)*

Carcass Characteristics and Economic Benefits of Weaner Rabbits Fed Cassava Tuber Meals

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An eleven-week research was conducted to evaluate the carcass characteristic and economics of production of rabbit fed cassava peel meal, peeled cassava tuber meal and composite cassava tuber meal diets. Twenty-four weaner rabbits of mixed strains and sexes aged 6 to 7 weeks randomly allotted to four dietary treatments replicated two times each with 3 rabbits per replicate in a completely randomized design. The parameters studied were final live-weights, dressed weight, dressing percentage, internal organs weights, feed cost (N kg^{-1}), total feed cost (N), feed cost (N kg^{-1} gain) and relative cost advantage (%). There was no significant difference ($p>0.05$) in the final live weights, dressed weights, dressing percentage and in most of the internal organs measured. However, economic of

production data indicated lowest cost per weight gain (N kg^{-1}) by the rabbits fed composite cassava tuber meal, while highest cost per weight gain was recorded in the rabbits fed the control diet (maize meal). *(Asian Journal of Animal and Veterinary Advances 4 (4): 214-218, 2009; **doi:** 10.3923/ajava.2009.214.218)*

The Effect of Delayed Ensiling and Application of an Organic Acid-based Additives on the Fermentation of Corn Silage

S. Arbabi, T. Ghoorchi and S. Hasani

The main objective of this study was to determine the effects of organic acid-based additives on the fermentation and delayed ensiling of corn silage. Prolonged exposure to air can adversely affect the silage fermentation process. To investigate a possible method to overcome this problem, we found that when a buffered propionic acid-based additive, is applied to chopped, whole-plant corn exposed to air before ensiling, it will affect the subsequent fermentation. Chopped whole plant corn mixed with 4 different additives consist of propionic acid in addition to control treatment without any additive. Additives were: (1) propionic acid, (2) propionic acid (85%)+formic acid (15%), (3) calcium propionate and (4) propionic acid (80%)+formic acid (15%)+ammonia (5%). The 10 g kg^{-1} dry matter of each additives mixed with chopped corn forage in 3 different times (0 (immediately), 24, 48 h). Silages were assessed by the method of appearance evaluation and DM, pH evaluation. CP, NDF, ADF, TVFA, WSC, so that, the aerobic stability and DM degradation of each treatment were determined after 60 days. Silages that exposed to air for 24 h, before ensiling had better appearance quality than two other delaying time (0 and 48 h) in Filg's method and whole additives in this experiment had good effects on appearance quality in comparison with control group. All of silages containing buffered propionic acid-based additive, in method of DM, pH evaluation, were good and very good. These silages had lower ($p<0.05$) pH than control ones. Amount of dry matter of control silage which ensiled immediately was lower than other treated silages. NDF in control silages (without additive) was more than that in treated silages and amount of CP and TVFA increased with addition of additives especially those containing propionic acid (85%)+formic acid (15%) ($p<0.05$). WSC in control silage that wilted 48 h before ensiling was more than other samples ($p<0.05$). Buffered propionic acid-based additives increased aerobic stability in treated silages in comparison with untreated ones. Degradation of DM (*in situ*) for untreated silages that delayed ensiled was lower. Application of the additive containing propionic acid (80%)+ formic acid (15%)+ammonia (5%) resulted in

highest degradation of dry matter among experimental additives. Generally, treatment with propionic acid-based additives prevented a decrease in DM degradation (*in vitro*). *(Asian Journal of Animal and Veterinary Advances 4 (5): 219-227, 2009;* ***doi:*** *10.3923/ajava.2009.219.227)*

The Effects of Different Caponization Age on Growth Performance and Blood Parameters in Male Tibetan Chicken

Yonggang Shao, Changxin Wu, Junying Li and Chunjiang Zhao

In this experiment, forty triplets consisting of full-sib Tibetan Chicken cockerels were divided equally into two trial groups. In each group, the triplets were randomly assigned to caponization, sham treatment and intact groups. The birds of the two trials were caponized or sham-operated at either 6 weeks of age (early) or 18 weeks of age (late) and slaughtered at 24 weeks of age. The birds in the early caponization group showed significant increases in terms of intermuscular fat deposits, subcutaneous fat thickness, liver weight, triacylglycerol concentration ($p<0.05$) and abdominal fat weight ($p<0.01$) at 24 weeks of age compared with the intact and sham groups, while later caponization resulted in significant increase in liver weight, abdominal fat weight, total cholesterol and triacylglycerol concentrations ($p<0.05$). In both trials, the capons exhibited lower leg muscle weight than did the intact ($p<0.05$). There were no significant effects on breast muscle weight on either the early or late caponization group. We concluded that late caponization accelerates the rate of fat deposition within the abdominal cavity compared to other areas after sexual maturity. Present results also suggest that the role of androgen on the growth of breast muscle is different from that on leg muscle in Tibetan Chicken cockerels. It seemed that the positive effects of androgen were reflected only on leg muscle growth. *(Asian Journal of Animal and Veterinary Advances 4 (5): 228-236, 2009;* ***doi:*** *10.3923/ajava.2009.228.236)*

DNA Polymorphism of Indigenous Chickens in Jordan

Raed M. Al-Atiyat

DNA polymorphism of four indigenous chicken ecotypes was assessed in Jordan using Random Amplified Polymorphic DNA (RAPD) markers. Ten RAPD markers showed high genetic polymorphism values in the 4 ecotypes located in the Northern, Eastern, Western and Southern provinces of Jordan. The effective number of alleles per locus ranged from 1.47 to 1.7 (mean 1.65). The expected heterozygosity varied from 0.28 to 0.41 (mean 0.39) and Shannon's index from

0.42 to 0.60 (mean 0.58). The Western ecotype showed higher levels of effective allele number, expected heterozygosity and Shannon's index than the others. The genetic similarity between the Northern, Eastern and Western ecotypes ranged from 0.95 to 0.97, while it ranged from 0.69 to 0.85 between the Southern ecotype and the others. The largest genetic distance was found between the Northern and Southern ecotypes (0.37), whereas the smallest (0.04) was between the Northern and Eastern ecotypes. The Southern ecotype was found to be the most genetically distant among all ecotypes. Based on the results, the RAPD markers were effective in detecting genetic diversity in the chicken ecotypes, representing valuable results for genetic conservation purposes. *(Asian Journal of Animal and Veterinary Advances 4 (5): 237-244, 2009;* ***doi:*** *10.3923/ajava.2009.237.244)*

Effects of Lameness, Stage of Lactation and Body Condition Scoreon Some Blood Parameters in Holstein Cows

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Effects of lameness, stage of lactation and body condition score on serum AST and ALT activities as well as serum total protein, triglyceride, cholesterol and albumin concentrations in cows was investigated in the present study. Fifty six pure Holstein cows were included in this study. AST, ALT and cholesterol levels were significantly altered by stages of lactation ($p<0.05$). Total protein, triglyceride, AST, ALT, cholesterol and albumin levels were low at early stages of lactation and dry periods; in the course of time, their concentrations increased. However, in late stages of lactation, serum total protein, triglyceride, AST, ALT, cholesterol and albumin levels declined. No significant alterations were detected in the blood parameters of lame cows. However, AST, ALT and albumin levels were low in cows with a lameness score of 4. Likewise, blood parameters were not affected by body condition. Triglyceride, AST, cholesterol and albumin levels are high in cows with higher body conditions (≥ 2.75). *(Asian Journal of Animal and Veterinary Advances 4 (5): 245-251, 2009;* ***doi:*** *10.3923/ajava.2009.245.251)*

Genetic Polymorphisms of α-lactalbumin and β-lactoglobulin in South Anatolian and East Anatolian Red Cattle

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The objective of the present study was to determine the genotype and allele frequencies for alpha-lactalbumin (α-LA) ve β-lactoglobulin (β-LG) that are

claimed to be associated with milk production traits in cattle in South Anatolian Red (SAR) and East Anatolian Red (EAR) cattle. In this study, 40 cattle for each of SAR and EAR were used. Genomic DNA samples were isolated by using standard salt-out method. After Polymerase Chain Reaction (PCR), α-LA and β-LG genes were digested with *Msp*I and *Rsa*I (R5), *Ava*I (R3), *Msp*I (R1), *Sau*3A (R2) restriction enzymes, respectively. As a result, SAR and EAR cattle breeds have the lower allel frequencies for α-LA and β-LG gene than high-yielding European dairy cattle breeds. Because of that reason we may claim that applying the selection programs for developing the allels belonging to both genes may contribute to the trials to improve the production parameters in SAR and EAR breed bovines. *(Asian Journal of Animal and Veterinary Advances 4 (5): 252-257, 2009;* ***doi:*** *10.3923/ajava.2009.252.257)*

PCR-Based Detection of *Yersinia ruckeri* Infection in Rainbow Trout Fish

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The aim of this study was designing a diagnostic kit for yersiniosis in the trout fish in Iran. Colonies of *Yersinia ruckeri* were collected from culture medium and a suspension was prepared in a lysing solution. DNA was extracted through a boiling and phenol chloroform method. Two primer sets targeting bacterial 16S rRNA and trout 18S rRNA. Polymerase chain reaction products were separated by gel electrophoresis. Among 20 suspected samples tested two samples were positive for both host and bacterial PCRs indicating the positive *Y. ruckeri* infection and remaining 18 samples were negative for pathogen. The performance of PCR reactions in negative samples were confirmed from amplification of internal control reactions targeting host. A PCR based diagnostic kit with an internal control was prepared for detection of *Yersinia ruckeri* in rainbow trout fish. *(Asian Journal of Animal and Veterinary Advances 4 (5): 258-262, 2009;* ***doi:*** *10.3923/ajava.2009.258.262)*

Neospora caninum Antibodies and its Consequences for Reproductive Characteristics in Wandering Sows from Senegal, West Africa

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The aim of this study was to assay *Neospora caninum* antibodies and assess their consequences in terms of reproductive characteristics in wandering sows from

Senegal, West Africa. Sera of 60 sows were assayed for antibodies against *N. caninum*. The associations between serostatus and reproductive characteristics were assessed over a period of 3 years (2006-2008). The 58.3% of sera were positive to *N. caninum* antibodies. Some reproductive disorders as age of sow at first birth, annual number of deliveries and stillbirths were significantly associated with serostatus of *N. caninum* ($p<0.05$). Results of this preliminary study indicate a higher prevalence of *N. caninum* in wandering sows from Senegal and there appeared to be an association between reproductive disorders and seropositivity. Thus, neosporosis may explain the lower reproductive performance in species from Africa. This has to be taken in account in epidemiology and impact of this new disease in African sows. *(Asian Journal of Animal and Veterinary Advances 4 (5): 263-266, 2009;* ***doi:*** *10.3923/ajava.2009.263.266)*

Cellular and Humoral Immune Responses and Antigen Recognition in Sprague-Dawley Rats Experimentally Infected with *Brucella abortus* Biotype 1

M.M. Khatun, M.A. Islam, B.K. Baek and S.I. Lee

The study was undertaken to investigate the cellular and humoral immune responses as well as antigen recognition in the acute and sub-acute stages of *Brucella abortus* biotype 1 infection in Sprague-Dawley (SD) rats. The SD rats were infected intraperitoneally with 1×10^{10} colony forming unit (cfu) of *B. abortus* biotype 1 Korean bovine isolate. The cellular and humoral immune responses were measured at 0, 3, 7, 14, 21, 28, 35, 42, 60, 90 and 120 days after infection against Crude Brucella Protein (CBP) by Lymphocyte Proliferation Assay (LPA) and Indirect Enzyme-linked Immunosorbent Assay (IELISA). The experimentally infected rats developed specific lymphoproliferative and humoral immune response within 1 week post infection. A significant increase in the proliferative response to CBP was recorded on day 28 post infection. *Brucella abortus* specific IgG responses were initiated in SD rats at 3 days after infection. The highest IgG antibody titers were recorded at 35 days after infection and then the titer gradually decreased until the end of the experiment. Recognition of immunodominant antigens in CBP of *B. abortus* was performed by Western Blot (WB) assay using infected rat sera collected at 0, 3, 7, 14, 21, 28, 35, 42, 60, 90 and 120 days after infection. Western blot assay of the sera using CBP antigens revealed a wide array of protein bands between molecular weight of 19 and 125 kDa. Proteins of 125, 105, 82, 66, 54, 46, 32, 24, 22, 21 and 19 kDa were frequently recognized by the sera of infected rats during the experiment. The 82, 46, 32, 24, 22, 21 and 19 kDa proteins were intensely recognized during the course of infection. These

antigens should be considered useful for the diagnostic of *B. abortus* infection. *(Asian Journal of Animal and Veterinary Advances 4 (6): 267-277, 2009; **doi**: 10.3923/ajava.2009.267.277)*

Effect of Different Feeding Method on Methane and Carbon Dioxide Emissions Milk Yield and Composition of Lactating Awassi Sheep

Sabri Yurtseven, Mehmet Cetin, Irfan Öztürk, Abdullah Can, Mustafa Boga, Tekin Şahin and Hüseyin Turkoglu

This study was performed to evaluate the effect of different feeding systems (choice feeding and conventional system) on performance and emission of carbon dioxide (CO_2) and enteric methane (CH_4) in dairy Awassi ewes. One chamber was equipped with gas analyzers to measure CH_4 and CO_2 for 23 h day^{-1}. In total, 16 ewes were used. The ewes were divided into two groups: the Free Choice (FC) group received feed ingredients separately and the Total Mixed Ration (TMR) group received a standard mixed concentrate: forage diet in a ratio of 60:40. The results showed no significant differences between treatments in performance parameters. However, the results of CH_4 and CO_2 measurement indicated significant differences between groups in the amounts of CH_4 and CO_2 produced per kg dry matter intake. The ewes in the FC group produced less CH_4 per animal than the ewes that received the TMR system. In ewes on the FC system, the level of propionate was greatly increased relative to the total VFA components. There were no significant differences in ruminal pH and acetate level between treatments. The results indicate that the FC system may be a potential mitigating effect on enteric emission of CH_4 and CO_2. *(Asian Journal of Animal and Veterinary Advances 4 (6): 278-287, 2009; **doi**: 10.3923/ajava.2009.278.287)*

Isoflavone Aglycone from Fermented Soy Pulp Prevents Osteoporosis in Ovariectomized Rats

Go-Eun Hong, P.K. Mandal, Chang-Won Pyun, K. Choi, Soo-Ki Kim, Kyu-Ho Han, M. Fukushima, Ho-Chul Shin and Chi-Ho Lee

This study was done to investigate the effects of fermented soy pulp on the osteoporosis in ovariectomized rats. Sprague-Dawley female rats were randomly assigned to four groups as Sham Control (SC), Ovariectomized Control (OC), Ovariectomized and Soy Pulp (OSP) fed and Ovariectomized and Fermented Soy

Pulp (OFSP) fed. All rats were fed on purified diets, supplemented with non-fermented and fermented soy pulp on basic diet for 7 weeks. It was observed that isoflavone aglycone was very high in soy pulp fermented for 12 h in comparison to non-fermented soy pulp. Body weight of the rats increased significantly ($p<0.05$) in comparison to other groups. Atrophy of uterus in OFSP group was significantly ($p<0.05$) prevented in comparison to OC group. The concentration of estradiol in OFSP group was higher than those of OC and OSP groups. The bone density in OFSP group was significantly ($p<0.05$) higher than those of OC and OSP groups. The histopathology indicated that OFSP group has better retarded the progress of osteoporosis than other groups. The results showed that isoflavone from the fermented soy pulp has prevented the osteoporosis in ovariectomized rats must be due to its estradiol like function. It is expected that the fermented soy pulp might serve as a functional food in osteoporosis of postmenopausal women. *(Asian Journal of Animal and Veterinary Advances 4 (6): 288-296, 2009;* ***doi:*** *10.3923/ajava.2009.288.296)*

Gross Sign, Histopathology and Polymerase Chain Reaction Observations of White Spot Syndrome Virus in Shrimp Specific Pathogen Free *Litopeneaus vannamei* in Iran

M. Afsharnasab, R. Mortezaei, V. Yegane and B. Kazemi

The importation of *Litopenaeus vannamei* to Iran from Hawaii was initiated when Iranian shrimp culture was first affected by WSSV in 2004. The main reason for the importation of *L. vannamei* to Iran was the disease susceptibility and mass mortality of the indigenous species (*P. indicus*) when faced with the first outbreak of WSSV. During the two years of study, it was found out that culturists in Iran preferred cultured *L. vannamei* than the local species (*P. indicus*). In 2008, mass mortality occurred in farmed *L. vannamei* in Khuzestan Province South of Iran. Two hundred shrimps with white spot on the carapace and body were collected and preserved in Davidson fixative for histopathology. A part of samples collected were also preserved in 95% ethyl alcohol for Polymerase Chain Reaction (PCR) technique. Two pair primers from VP24 WSSV genome was identified and used for PCR while identified one pair primer for 18SrRNA gene of shrimp was used as house keeping gene in PCR reaction in both positive and negative PCR reaction. Grossly, the samples showed white spot in the cuticle and body surface and red color on the appendages. Histopathologically, all tissue except hepatopancreas showed the intranuclear Cowdry type-A inclusion bodies. PCR studies using designated primer revealed a band of 414 bp from WSSV and 809 bp of shrimp DNA fragments in positive samples. The negative samples showed

just 809 bp. This is the first report of White Spot Syndrome Virus (WSSV) in farmed *L. vannamei* in Iran. *(Asian Journal of Animal and Veterinary Advances 4 (6): 297-305, 2009; **doi:** 10.3923/ajava.2009.297.305)*

Comparison of Electroanesthesia with Chemical Anesthesia (MS222 and Clove Oil) in Rainbow Trout (*Oncorhynchus mykiss*) using Plasma Cortisol and Glucose Responses as Physiological Stress Indicators

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This study investigates Alternating Current (AC) electroanesthesia of rainbow trout (*Oncorhynchus mykiss*) in comparison with MS222 and clove oil, using plasma cortisol and glucose concentrations as stress assessment indicators. A microcontroller-based apparatus was designed and constructed to allow a programmable voltage-time Pulse-Width Modulated (PWM) electrical wave application through 19×20 cm submersible electrodes for 91sec in a 33 cm long tank to induce loss of equilibrium and immobility with recovery after 52±27 sec. Recovery after 660±102 sec was observed in MS222-anesthetized fish (after induction for 720±72 sec) and a recovery time of 546±102 sec was observed in clove oil-anesthetized fish (after induction for 144±42 sec) both are significantly longer recovery times in comparison with electroanesthesia ($p<0.001$). Using direct enzyme-linked immunosorbant assay (ELISA) for cortisol and enzymatic colorimetric assay for glucose assessments at 0, 1, 6, 12 h after each anesthesia, the anesthetics indicated similar trend of cortisol responses during 12 h of investigation. The dilatory trend of glucose changes and response derived from anesthetics and electricity and its surge at 6 h after anesthesia ($p<0.05$) confirmed glucose as a second order indicator of stress responses. Electroanesthesia is a fast, economic, eco-friendly and safe anesthetic method provides desirable trout immobility for aquaculture activities. *(Asian Journal of Animal and Veterinary Advances 4 (6): 306-313, 2009; **doi:** 10.3923/ajava.2009.306.313)*

Automation of Flock Management and Establishment of Decision Support Systems for Small Ruminant Production

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This study is carried out to automate the small ruminant (sheep and goat) records and to use these records more effectively for animal breeding. It was aimed to

calculate breeding values for animals by using this software. Additionally, it was aimed to calculate breeding values in terms of milk yield for male animals by using progeny testing (average offspring yield) which otherwise could not be measured by direct methods. Decision support systems, which help to decision making for flock owners and animal breeding persons, have been enhanced by using this software. Decision support systems such as determining of animals to be sold because of old age, determining of offspring that they have unknown father, accurately determining of yields of animals, health managements, determining of culling animals from flock were put into service of user as a tool. Appropriate software SURPRO V1.0 was written by use of Visual basic 6.0 and MsAccess was used as database with this objective in mind. *(Asian Journal of Animal and Veterinary Advances 4 (6): 314-319, 2009;* ***doi:*** *10.3923/ajava.2009.314.319)*

Anti-Inflammatory Activities of Diethyl-Ether Extracts of *Helichrysum plicatum* DC. and *Tanacetum balsamita* L. in Rats

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The aim of this study was to investigate anti-inflammatory activity of the diethyl ether extract of *Tanacetum balsamita* L. subsp. (TB) and *Helichrysum plicatum* DC. subsp. (HP) in carrageenan-induced inflammation in rats. Lambda carrageenan (0.05 mL) was injected into the subplantar region of the right hind paw to induce inflammation. Control group and the reference group were administered isotonic saline solution and indomethacin, respectively. TB extract was injected in doses of 25, 50 and 100 mg kg^{-1} in the groups TB-25, TB-50 and TB-100, respectively. HP-25 HP-50 and HP-100 groups were injected HP extract in doses of 25, 50 and 100 mg kg^{-1}. Before the injections and 3 h after the injections the volume of right hind-paw of rats was measured using a plethysmometer.TB and HP had anti-inflammatory effects matching to that of the reference agent at all doses. It was found that reduction in the inflammation was 95.21% with indomethacin, 51.93% with TB-25, 52.55% with TB-50, 61.51% with TB-100, 70.73% with HP-25, 73.15% with HP-50 and 82.90% with HP-100. Median effective dose (ED_{50}) value of TB and HP were found to be 81.484 and 73.030 mg kg^{-1}, respectively. The results showed that *Tanacetum balsamita* L. subsp. and *Helichrysum plicatum* DC. subsp. had a significant anti-inflammatory activity. *(Asian Journal of Animal and Veterinary Advances 4 (6): 320-325, 2009;* ***doi:*** *10.3923/ajava.2009.320.325)*

Effects of 5 h Wetting of Sun-Dried Cassava Tuber Meal on the Hydrocyanide Content and Dietary Value of the Meal for Laying Hens

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The efficacy of wetting sun-dried cassava tuber meal as a method of reducing its hydrocyanide (HCN) content and improving its nutritive value for laying hens was investigated. Cassava tubers were peeled, chopped into pieces, sun-dried and then milled. Part of the Sun-dried Cassava Tuber Meal (SCTM) was soaked in water at the rate of 5 parts of water to 4 parts of the meal, thinly spread on the floor for 5 h and then taken out and sun-dried again. The Raw Cassava Tuber Meal (RCTM), Sun-dried Cassava Tuber Meal (SCTM) and Wetted Sun-dried Cassava Tuber Meal (WSCTM) were analyzed for HCN content. Five diets were made such that diet 1 (control) contained no cassava tuber meal; in diets 2 and 3, 50% of the maize in diet 1 was replaced with SCTM and WSCTM, respectively, while in diets 4 and 5, 100% of the maize was replaced with SCTM and WSCTM, respectively. Each diet was fed to a group of 24 laying hens for 12 weeks. At the end of the feeding trial, 4 birds were randomly selected from each group and used for determination of internal organ weights and haematological indices. Raw cassava tuber meal contained 800 ppm HCN, SCTM contained 50 ppm HCN while WSCTM contained 10 ppm HCN. The group on 100% WSCTM diet consumed significantly ($p<0.05$) less feed, gained least body weight and recorded least hen-day egg production, possibly due to very powdery nature of the diet. Egg weight and feed conversion ratio were not affected by the treatments ($p>0.05$). Egg quality indices were also not affected by the treatments ($p>0.05$). Internal organ weights were not affected by the treatments ($p>0.05$) but the birds on cassava diets recorded significantly ($p<0.05$) more abdominal fat. The birds on cassava diets also recorded significantly ($p<0.05$) less WBC and PCV values relative to the control group. *(Asian Journal of Animal and Veterinary Advances 4 (6): 326-331, 2009;* ***doi:*** *10.3923/ajava.2009.326.331)*

The Seroprevalence of Ovine Toxoplasmosis in Fars Province, Southern Iran

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This study determines the prevalence of ovine toxoplasmosis in Shiraz, Southern Iran. From April 2004 to May 2005, serum samples of 603 sheep were randomly collected in 18 Cities of Fars Province, Southern Iran and tested for toxoplasmosis using Indirect Fluorescent Antibody Technique (IFAT). The prevalence of toxoplasmosis was 26.5%, while the rate of seropositivities in 1/100, 1/200, 1/400 and 1/800 dilutions were 17.7, 2.8, 4.3 and 1.7%, respectively. The highest prevalence was in Abadeh (56.7%) and Nourabad (44.3%) cities and the lowest was determined Arsanjan (4.2%) whereas no infection was determined in Fasa. Considering the high prevalence of toxoplasmosis in sheep in our region, control measures need to be undertaken to prevent transmission of the infection to other animals and man by health and veterinary authorities. Therefore, it seems that standardization of techniques, hygienic standards in sheep breeding especially in cities with more migrating domestic animals and environmental health education for veterinary personnel are required to prevent human infection. *(Asian Journal of Animal and Veterinary Advances 4 (6): 332-336, 2009;* ***doi:*** *10.3923/ajava.2009.332.336)*

The Effects of Replacing Soybean Meal with Different Levels of Rapeseed Meal on Egg Quality Characteristics of Commercial Laying Hens

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One hundred and forty four of Hy-line (W-36) laying hens from the age of 44 to 56 weeks were used to evaluate the effects of replacing different levels of rapeseed meal with soybean meal on egg quality characteristics of commercial laying hens. The rapeseed meal was replaced with soybean meal at the levels of 0 (control), 5, 10 and 15% for 12 weeks. Hens were distributed in multi-observational completely randomized block design with 4 treatments, three replicates and 12 hens in each replicate. The parameters used to assess were haugh unit, shell thickness, shell weight, shell strength and yolk index. Results showed that addition of 10% rapeseed meal in diets increased ($p<0.05$) eggshell weight. With increasing of rapeseed meal level in diets, yolk index had showed decline ($p<0.05$). No specific trend was observed on the effect of rapeseed meal on haugh unit, shell thickness and shell strength, however these parameters were higher in groups that fed 10% rapeseed meal. We did not observe any health problems of the hens during the experiment. *(Asian Journal of Animal and Veterinary Advances 4 (6): 337-341, 2009;* ***doi:*** *10.3923/ajava.2009.337.341)*

Incidence Rate of Varroaris in Honey Bee Colonies of Eastern Azarbaijan Province, Northwestern Iran

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The aim of this study is to come to a conclusion on the seasonal existence of varroaris in the apiaries of Eastern Azerbaijan Province, Northwestern Iran and comparing the spread rate of varroaris in this region with other regions (reported in similar studies). Among 942 apiaries under study (located in 10 regions in the province) in one year, 217 apiaries were infected by varroaris. Varroaris was witnessed to be found in its lowest rate in June (7.72%) and its peak was recorded to be in March (44%). Parasitic infection in the apiaries in the area in the months of honey production, during summer and fall demonstrated an increasing procedure in a way that in the months: July, August, September and October, the percentage of infected apiaries was, respectively 9.76, 26.82, 32.92 and 40%. In January, February and March the peak of infection witnessed was, respectively: 33.33, 34.66 and 44%. It is proposed that the rate of varroaris infection is higher in cold regions such as Eastern Azarbaijan Province comparing to warm climates and its incidence and spread in the cold seasons (fall and winter) is more than warm and hot seasons (spring and summer). *(Asian Journal of Animal and Veterinary Advances 4 (6): 342-345, 2009;* ***doi:*** *10.3923/ajava.2009.342.345)*

Neospora caninum and *Toxoplasma gondii* in Lion (*Panthera leo*) from Senegal, West Africa

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The prevalence of antibodies to *Neospora caninum* and *Toxoplasma gondii* were investigated in seven lions (*Panthera leo*) from Hann's zoo of Dakar-Senegal. Seven sera samples were examined for antibodies against *Neospora caninum* (*Neospora caninum* antibodies test kit, cELISA) and *Toxoplasma gondii* (ID Screen® Toxoplasmosis Indirect ELISA). All sera were positives to *Neospora caninum* antibodies whereas 3 for 7 (42.86%) were positives to *Toxoplasma gondii*. Serological results indicate a common exposure to *Neospora caninum* and *Toxoplasma gondii* among lions (*Panthera leo*) from zoo in Senegal. *(Asian Journal of Animal and Veterinary Advances 4 (6): 346-349, 2009;* ***doi:*** *10.3923/ajava.2009.346.349)*

Diversity and New Records of Coleopteran Water Beetles (Dyctiscidae, Hydrophilidae) in Kenyir Water Catchment of Terengganu, Malaysia

Fauziah Abdullah

A survey on coleopteran water beetles were conducted at Teluk Bewah and Sungai Cicir in Kenyir water catchment revealed the presence of only 4 species in total. These are *Lacconeatus* sp. 1, *Lacconeatus* sp. 2, one unidentified species under the family Dytiscidae and *Hydroratus* sp. under family Hydrophilidae. All the members are new records for Tasek Kenyir. The low abundance (Margalef Index; 1.820) and low diversity value (Simpson Diversity Index; 0.098) of the water beetles implies that the ecosystem is under stress. More samplings of the water beetle from the Kenyir water catchment is needed to elucidate actual species range and biodiversity. *(International Journal of Zoological Research 5 (1): 1-8, 2009;* ***doi:*** *10.3923/ijzr.2009.1.8)*

Mangrove Spiders (Araneae) of Peninsular Malaysia

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This study examines the diversity and distribution of spiders in the mangrove areas in Peninsular Malaysia which is hoped to contribute towards understanding the dynamics of the mangrove ecosystem. Little research has been done on local spiders and inventory from this habitat is rare. From faunal samples taken along transects from upper to lower zones of Morib mangrove forest and studies on available museum specimens in the Raffles Museum of Biodiversity Research (RMBR), yielded 26 species belonging to 10 family groups. There exist 4 species as new records for Malaysia which are *Clubiona meraukensis*, *Dolomedes mizhoanus*, *Pardosa zhanjiangensis* and *Telamonia dimidiata*. The jumpers or family Salticidae has an overall wide distribution across all zones sampled. Generally, the spider distribution depended on the zone location and floral diversity. Spider zonation pattern is probably influenced by complex factor combinations rather than one factor which include biotic relationships such as competition and predation. *(International Journal of Zoological Research 5 (1): 9-15, 2009;* ***doi:*** *10.3923/ijzr.2009.9.15)*

Integration of Two Newly Formed Couples of *Canis lupus baileyi* at Two Zoos in Mexico

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The study was done to determine when social integration occurs in newly formed Mexican gray wolf couples. Two wolf pairs, at Zacango Zoo (ZZ) and Leon Zoo (LZ) respectively, were observed daily from the time they were put together until 15 days after the breeding season was over. Social behavior frequencies were split out in five periods: Anterior, Previous, During, After and Posterior to the breeding season. The Binomial test was used to analyze the social interactions between the pairs and the differences between genders. During the reproductive season both couples showed a significative increase in neutral behaviors-mainly by the females, all disappearing in the After period. In both groups, males were on the defensive and playful behavior, aggressive behavior was displayed almost exclusively by the bitches. Again, this last behaviour decreased in the After-breeding period. In conclusion, neither playful nor aggressive behavior observed indicate that wolves had socially integrated, since as in neutral interactions, these behaviors were only shown During the reproductive season and then disappeared afterwards. *(International Journal of Zoological Research 5 (1): 16-26, 2009;* ***doi:*** *10.3923/ijzr.2009.16.26)*

Insectivorous Birds and Environmental Factors Across an Edge-Interior Gradient in Tropical Rainforest of Malaysia

Hossein Varasteh Moradi, Mohammed Zakaria, Abdullah B. Mohd, Ebil Yusof

The study objectives were to test: (1) the effects of the edge-interior gradient on under storey insectivorous bird abundance, density and diversity; (2) effects of environmental variables along an edge-interior gradient at population level (i.e., on each sub-guilds and species abundance); (3) possible effects of environmental structure along an edge-interior gradient at community level (i.e., species richness, diversity and total abundance). Fifteen hundred and four birds belonging to 49 species were recorded. Species composition differed along the edge-interior gradient at the guild and species level. The composition of insectivorous birds was correlated with the latter measured environmental variables. Based on bird-habitat associations along the edge-interior gradient, two groups were distinguished. Arboreal foliage gleaning insectivores were positively correlated with ground cover, light intensity, shrub cover and percent of shrub cover between 0.5 and

2 m high. While terrestrial insectivores, were sensitive to the forest edge and could indicate the quality of forest interior habitats associated with high humidity, dense canopy cover and deep litter depth. Forest remnants in the lowlands of Peninsular Malaysia that have a deep leaf litter layer, a dense canopy cover and high relative humidity are able to support insectivorous species that are sensitive to edge effects. As such these forests have important conservation value. *(International Journal of Zoological Research 5 (1): 27-41, 2009;* ***doi:*** *10.3923/ijzr.2009.27.41)*

Anti-hyperglycemic, Immunomodulatory and Anti-oxidant Efficacy of Vasoactive Intestinal Peptide in Streptozotocin-Induced Diabetic Mice

O.M. Ahmed

The purpose of this study was to assess the effects of vasoactive intestinal peptide (VIP) administration on the glycemic state, insulin secretion, various pro-inflammatory and anti-inflammatory cytokines, liver pathology and oxidative stress as well as antioxidant defense system in streptozotocin-induced diabetic mice. VIP was intraperitoneally administered to normal and streptozotocin-induced diabetic CD1 mice at a dose level of 41.6 ng kg^{-1} b.wt., 3 times/week for 8 consecutive weeks to form a total dose of 1 μg kg^{-1} b.wt. at the end of the experiment. The VIP was found to have anti-hyperglycemic and insulinotropic properties and improving effects on the islets of Langerhans and liver pathology of diabetic mice. These VIP ameliorating-changes may be mediated via its augmenting effect on anti-inflammatory cytokines (IL-10 and IL-12) and decreasing effect on pro-inflammatory cytokine, TNF-α, as well as its potency in suppressing the oxidative stress and enhancing the anti-oxidant defense system. However, further clinical studies are required to assess the efficacy and safety of VIP in diabetic human beings. *(International Journal of Zoological Research 5 (2): 42-61, 2009;* ***doi:*** *10.3923/ijzr.2009.42.61)*

Diversity and Distribution of Freshwater Fishes in Aceh Water, Northern-Sumatra, Indonesia

Z.A. Muchlisin and M.N. Siti Azizah

The objective of the present study was to evaluate the diversity of freshwater fish and its distribution and to establish an inventory of the freshwater fish fauna in Aceh water. Sampling was done in five regions of NAD at 17 sites. Explorative

research was conducted from January to June 2008 by investigating rivers based on information by local residents. Sampling was carried out in both lotic and lentic ecosystems. A total of 711 fishes belonging to 114 species, 69 genera, 41 families and 12 orders. Five families were distributed widely and observed in all the five regions i.e., Anguillidae, Clariidae, Cyprinidae, Anabantidae and Channidae. Sixteen families were found in only a single site. The diversity index of fishes in Aceh water ranged from 1.31 to 3.41 with an average of 2.17 indicating moderate values. The highest diversity was found in Lembang River of Aceh Selatan, while regionally, the North and south regions were higher but not significantly different from the West region. Highest similarity was found between Simpang dam and Sibreh irrigation canal of Sibreh. The similarity index between West and North region were relatively higher compared to other regional comparisons. *(International Journal of Zoological Research 5 (2): 62-79, 2009;* ***doi:*** *10.3923/ijzr.2009.62.79)*

Fatal Aspergillosis in an Ostrich (*Struthio camelus*) Predisposed by Pulmonary Haemangioma in the Kingdom of Saudi Arabia

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A laboratory study was carried out to investigate fatal aspergillosis in an ostrich (*Struthio camelus*) predisposed by pulmonary haemangioma in the Kingdom of Saudi Arabia. The examination of Post Mortem (PM) revealed numerous ulcerated (1×0.5 cm) subcutaneous opaque thick masses with turbid materials (exudates) in the cut section together with fibrosis in between air sacs and the thoracic wall. The microscopic appearance indicated the presence of capillary type haemangioma in ostrich. The proliferating cells were highly differentiated, uniform with spindle-shaped nuclei resembling normal vascular endothelia and were arranged in the form of numerous capillaries distended with large amounts of blood erythrocytes and separated by fibrous stroma. However, large vascular spaces lined by a single layer of endothelium were also observed. The superficial parts of the tumour showed hyperkeratosis of the epidermis and diffuse infiltration of lymphocytes in the interstitial areas. In addition, the fibrous stroma was more abundant and dense with more prominent collagen in the peripheral parts of the tumour. On PM, the tiny yellowish white foci were detected on the lung's specimens and yielded *A. fumigatus* in pure culture. The histopathologic examination of the lesions showed fungal hyphae, inflammatory and multinucleate giant cells. *(International Journal of Zoological Research 5 (2): 80-85, 2009;* ***doi:*** *10.3923/ijzr.2009.80.85)*

Species Diversity and Feeding Guilds of Birds in Paya Indah Wetland Reserve, Peninsular Malaysia

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The objective of this study was to examine the bird species diversity and feeding guilds in Paya Indah Wetland Reserve, Peninsular, Malaysia. Distance sampling-point count method was used to survey the bird species. A total of 13872 birds belonging to 100 species and 38 families were recorded. The results show that *Treron vernans* (12.42%), *Pycnonotus goiavier* (12.13%), *Geopelia striata* (7.58%), *Porphyrio porphyrio* (6.87%) and *Streptopelia chinensis* (6.33%) were the most dominant species in the area. The Ardeidae was the most dominant family with nine species and sixteen families were rarest only with one species each. The highest bird diversity was observed in Marsh swamp (Shannon's $N_1 = 27.16$), while the lowest was in Patchy shrubland (Shannon's $N_1 = 22.51$). The highest bird species richness was observed in Marsh swamp (Margalef's $R_1 = 9.52$), while the lowest was observed in open water bodies (Margalef's $R_1 = 7.35$). The evenness of individuals among the species was higher in Marsh swamps (Pielou J = 0.71) and lower in Patchy shrubland (Pielou J = 0.67). Analysis of variance and Tukey (HSD) tests showed that bird species among habitats is significantly different (F_4, 495 = 8.82 $p<0.0001$). Feeding guilds indicated that insectivore was the most dominant group (37%), while Carnivore/Insectivore and Granivore were the least dominant groups (3% each) in all five habitats. This study clearly indicated that Paya Indah Wetland Reserve is highly important in providing food resources, shelter, nesting and roosting sites for wide range of bird species. *(International Journal of Zoological Research 5 (3): 86-100, 2009; **doi:** 10.3923/ijzr.2009.86.100)*

Reduced and Misexpression of 5-HT_2 Receptors Alters Development, Behavior and CNS Activity in *Drosophila melanogaster*

S. Dasari, L. Wang, D.A. Harrison and R.L. Cooper

The misexpression as well as a knock down of the 5-HT_{2dro} receptor produces slower body movements in larvae and altered development. When 1st instar larvae are raised with altered expression levels a high degree of death occurred. Exposure of the CNS to 5-HT in control larva increases motor unit excitability; however, when the 5-HT_{2dro} expression is decreased the relative sensitivity to exogenously applied 5-HT is enhanced. This is likely a function of reduced basal

CNS activity in this line. No change was observed for the strain with an over-expression compared to controls. Evoked sensory-CNS-motor circuits as well as spontaneous motor neuronal activity are also reduced. Like CNS activity, Heart Rate (HR) in larva is sensitive to 5-HT. When the 1st instar to early 3rd instar were chronically reduced or misexpressed in the 5-HT receptor no alteration to 5-HT sensitivity on HR occurred, although the initial HR was lower in both strains as compared to wild type. Thus, a normal expression of the 5-HT_{2dro} is required for development and CNS responsiveness to 5-HT, but this receptor subtype might not function in acute responsiveness of the heart to 5-HT, although the receptor has some effect on basal heart rate. *(International Journal of Zoological Research 5 (3): 101-114, 2009;* ***doi:*** *10.3923/ijzr.2009.101.114)*

The Mollusk Gastropod *Lanistes carinatus* (Olivier, 1804) as Abiomonitor for Some Trace Metals in the Nile River

S.S.I. Abd El Gawad

The fresh water gastropod *Lanistes carinatus* was tested to be used as potential biomonitor for the trace metals, Copper, Cadmium and Lead. Some chemical and biological measurements were sampled and measured in two consecutive years 2005 and 2006 in different stations from Damietta Branch of Nile River. Cu level in water not detected in all investigated sites, while concentrations of Cd and Pb in water and the concentrations of Cu, Cd and Pb in sediment varied in different stations. It was found, metals concentrations were higher in sediment than those of water because sediments are important sinks for various pollutants like pesticides and heavy metals. The levels found for determined metals in water and sediment in the area are below of the permissible limits that set by the United States Environmental Protection Agency (EPA) except some deviations in managements of water especially at Kafr Saad. Concentrations of these metals in soft tissues of gastropod *Lanistes carinatus* were higher than those of sediment and vary widely in different sites suggesting that this gastropod accumulate these metals and consequently would be of use for monitoring. The population density of *Lanistes carinatus* decreased sharply opposite to discharge point of Electric Plant of Talkha and Kafr Saad. This may be due to thermal pollution of the plant. The study suggested the use of *Lanistes carinatus* as Cu, Cd and Pb biomonitor in nature and also recommended a construction of closed cycle for cooling water of the power stations to prevent heated water from being discharged into the River and also controlling the discharge of wastes and industrial effluents into Nile. *(International Journal of Zoological Research 5 (3): 115-125, 2009;* ***doi:*** *10.3923/ijzr.2009.115.125)*

Rove Beetles (Coleoptera: Staphylinidae) of Lanjak Entimau, Sarawak, East Malaysia

Fauziah Abdullah and Ibnu Sina

A study to determine the abundance of rove beetle (Coleoptera: Staphylinidae) was conducted from 15 to 28 June, 2008 at the dipterocarp forest of Lanjak Entimau, Sarawak, Malaysia. Collections were made at five sites namely Kawi River, Menyaring II, Satap, Begua and Joh River. A total of 175 rove beetles comprising of 17 species were sampled from all 5 sites of Lanjak Entimau. There was a high abundance (Margalef index, 3.097) and moderate diversity (Simpson diversity index, 0.798) of rove beetles at Lanjak Entimau. Four species were identified to species level, *Orphnebius bakerianus* Motschulscky, 1858, *Eleusis kraatzi* LeConte, 1863, *Belonuchus quadratu* Nordman, 1837, *Bledius gracilicornis* Casey, 1889. Seven species were identified to genus level *Orphnebius* sp., *Coproporus* sp., *Paederus* sp1, *Paederus* sp2, *Hesperus* sp., *Lispinus* sp., *Bledius* sp. and six species could not be identified even to genus level. Six unidentified species probably new for Science. Moderate diversity and high abundance of rove beetles at Lanjak Entimau are due to diverse habitats. Some differences in species sampled from peninsular Malaysia is explained in terms of isolation between Sarawak in Borneo island with peninsular Malaysia. *(International Journal of Zoological Research 5 (3): 126-135, 2009;* ***doi:*** *10.3923/ijzr.2009.126.135)*

Morphogenesis of the Acrosomal Vesicle During Spermiogenesis in the House Gecko *Ptyodactylus hasselquisti* (Squamata, Reptilia)

O.A. Al-Dokhi

The present study aimed to describe the morphogenesis of the acrosomal vesicle during spermiogenesis in the lizard *Ptyodactylus hasselquisti*. Five adult male lizards were captured during the period of sexual activity (April and May, 2005) from old houses in the city of Riyadh (25° 10' N, 46° 50' E), Saudi Arabia. Ultrastructural examination revealed proliferation and hypertrophy of Golgi complex elements as the initial event in formation of the acrosomal vesicle. Numerous small vesicles were released from Golgi complex and then coalesced to form a large proacrosomal vesicle which later attached to the proximal surface

of spermatid nucleus. A proximal concavity appeared in the spermatid nucleus to completely lodge the acrosomal vesicle, then the spermatid nucleus with the lodged vesicle were transported to be directly apposed to the spermatid plasmalemma. This was associated with the appearance of a single acrosomal granule at the vesicle base. Subsequently, the progressively pushed acrosomal vesicle was flattened on the proximal nuclear surface. Some acrosomal vesicle deformities were also illustrated. The successive morphogenetic stages of the acrosomal vesicle were discussed in comparison with that reported in the previous studies concerned with spermiogenesis in other reptile species. *(International Journal of Zoological Research 5 (4): 136-149, 2009; **doi:** 10.3923/ijzr.2009.136.149)*

Genetic Manifestation of Hybrid Vigor in Cross Breeds of Mulberry Silkworm, *Bombyx mori* L.

S.V. Seshagiri, C. Ramesha and C.G.P. Rao

The genetic manifestation of hybrid vigor among newly developed silkworm hybrid combinations over the parents was analyzed for the identification of superior cross breeds. Ten homozygous inbred polyvoltine breeds as Lines viz., APMG1, APMG2, APMG3, APMG4, APMW1, APMW2, APMW3, APMW4, APMW5 and APMW6and three bivoltine breeds as Tester viz., APS8, APS12 and APS45 were used for the study. Adopting the Line×Tester method, thirty hybrid combinations were prepared and reared at standard conditions. The data was measured on the nine important genetic traits viz., fecundity, yield per 10,000 larvae, pupation%, cocoon weight, shell weight, shell ratio%, filament length, reliability and neatness%. The data was analyzed for their Mid Parent Heterosis (MPH) and Better Parent Heterosis (BPH), six hybrid combinations viz., APMG1×APS8, APMG1×APS45, APMG3×APS12, APMW1×APS8, APMW2×APS8 and APMW4×APS45 were shown as significant heterotic combinations over mid parents for all the economical traits studied. The hybrid combination, APMW2×APS45 with seven traits and APMG1×APS8, APMG1×APS12, APMG3×APS12, APMW1×APS8 and APMW1×APS8 exhibited positive heterosis for six out of nine traits over better parent heterosis. Further, based on the evaluation index the study sturdily demonstrate that two new hybrid combinations viz., APMW1×APS8 (59.58) and APMG1×APS8 (58.68) were adjudicated as superior heterotic hybrid combinations and recommended for large scale laboratory trial. *(International Journal of Zoological Research 5 (4): 150-160, 2009; **doi:** 10.3923/ijzr.2009.150.160)*

Detection of Apoptotsis Induced by Gentamicin in Rat Hepatocytes

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The aim of the present study was to investigate the effect of antibiotic gentamicin on the apoptotic pathway in rat liver cells. For this purpose, four groups of rats were injected intramuscularly (im) with gentamicin at a dosage of 80 mg kg^{-1}b.wt. once daily for 1, 2, 3 and 4 weeks successively. The induced apoptosis in hepatocytes was evaluated as early as one day post-injection, the gentamicin started to induce apoptosis as assessed histologically and with the aid of Poly (ADP-ribose) polymerase (PARP) test. Histopathological examination and PARP test revealed relevant apoptosis markers at every weekly interval compared with the negative control. Irregular and condensed nuclear materials, organelles deteriorations and PARP fragmentation were the most alternations. This study demonstrated the potentiality of gentamicin to induce apoptosis in rat liver cells and the usefullness of the obtained data in daily clinical practice regarding the associated development of hepatotoxicity. *(International Journal of Zoological Research 5 (4): 161-170, 2009;* ***doi:*** *10.3923/ijzr.2009.161.170)*

Genetic Diversity Between Two Populations of *Heteropneustes fossilis* (Bloch) Using RAPD Profile

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The present study was aimed to elucidate its genetic diversity based on RAPD markers from 6 individuals belonging to two ecological habitats i.e., upper lake and lower lake of Bhopal. Ten random 10-mer primers were scored in each of the individuals from two locations out of which three primers, which gave polymorphism, were selected for Polymerase Chain Reaction (PCR) and used in the final RAPD analysis. The complementary approach of RAPD was used to evaluate the genetic diversity among all the accessions using 3 highly polymorphic primers. Using these primers, 128 scorable DNA fragments were found, of which 24 (18.75%) were polymorphic. By comparing RAPD banding patterns, small variations were found between and within the populations. The present study yielded data elucidating the usefulness of complementary approaches to make diversity analysis more explanatory and purposeful for optimum genetic amelioration and effective conservation of its genotypic variability. *(International Journal of Zoological Research 5 (4): 171-177, 2009;* ***doi:*** *10.3923/ijzr.2009.171.177)*