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Chemical and Microbiological Evaluation of Plain and Fruit Yoghurt in Khartoum State, Sudan

J.M. El Bakri and Ibtisam E.M. El Zubeir

This study was conducted to evaluate the quality of yoghurt supplied to consumers from retail outlets in Khartoum State. Yoghurt samples (144 samples), which represent three different manufacturers (A, B and C) beside traditional producers (T) were collected. The samples included 96 plain yoghurt samples and 48 fruit yoghurt samples. All yoghurt samples were analyzed for chemical parameters (total solids, SNF, fat, protein, ash %, titratable acidity and pH) and the microbiological tests (total bacterial count, coliform count and the yeast and molds count). The means for total solids %, solids non-fat (SNF), fat, protein, ash % and pH for the plain yoghurt samples were 14.04±1.83, 10.86±1.53, 3.18±1.01, 3.44±0.58, 0.678±0.146 and 4.62±0.10, respectively. Whereas for the fruit yoghurt samples the means were 21.70±1.34, 19.70±1.27, 2.00±0.62, 3.90±0.50, 0.661±0.087 and 4.68±0.12, respectively. The means of microbiological measurements for the plain yoghurt samples were log 9.10±9.86, log 4.03±4.41 and log 4.09±4.57 for the total bacterial count, coliform count and yeast and molds count, respectively. Whereas in the fruit yoghurt samples the means were log 8.63±9.99, log 3.59±4.15 and log 3.15±3.64, respectively. Results obtained revealed significant variations ($p \leq 0.001$) between samples obtained from different manufacturers in their chemical composition. One hundred and thirty eight of collected samples (96.5%) were found satisfying the international standard for solids non-fat content, however, 73 yoghurt samples (50.7%) were found to have a lower fat content than the standard. In the microbiological parameters tested, the total bacterial count and yeast and molds count were not significantly different between different manufacturers. The coliform count of samples varied significantly ($p \leq 0.001$) between manufacturers and with a significance higher ($p \leq 0.05$) coliform count in samples collected from traditional manufacturers than that collected from modern manufacturers. (*International Journal of Dairy Science 4 (1): 1-7, 2009;* ***doi:*** *10.3923/ijds.2009.1.7*)

Suitability of a Moisture Distribution Assay to Assess the Microbial Stability of Butter Produced at a Small Scale

Leen Van Campenhout, Sophie Schittecat, Sofie Vandewijngaarden and Johan Claes

In this study, the suitability of a moisture indicator paper technique was investigated as a fast and readily performable tool to determine the stability of farm

butter. Moisture distribution patterns along with Enterobacteriaceae and fungal counts were monitored during storage of butter produced from raw cream at a dairy farm. The same was done for butter produced from pasteurized cream under very hygienic conditions at a research institute. In dairy science and industry it is generally recognised that a fine and homogeneous distribution of moisture in butter limits microbial growth during storage. It was demonstrated, however, that the relation between moisture patterns and microbial counts during storage is not unequivocal for butter produced at a small scale. It was concluded that the hygiene conditions prevailing during butter production interfere with a relation which is usually considered as a universal principle. (*International Journal of Dairy Science 4 (1): 8-18, 2009;* ***doi:*** *10.3923/ijds.2009.8.18*)

Comparison of Cervical and Uterine Cytology Between Different Classification of Postpartum Endometritis and Bacterial Isolates in Holstein Dairy Cows

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The aim of this study was to compare cervical and uterine cytology of the postpartum endometritis and bacterial isolate groups in Holstein dairy cows. Four hundred two postpartum dairy cows from 13 commercial dairy herds were examined once between 21 and 35 days postpartum and 86 Holstein cows with postpartum endometritis were sampled. Endometritis was diagnosed by external observation, rectal palpation, vaginal exam, ultrasonography and cervical and uterine cytological examinations. Bacterial swabs were collected using a transcervical double-guarded swab. In total, cows were classified by clinical signs severity, ovarian status and bacterial culture results. The neutrophil percentage in cervical mucosa and uterine fluid of the cows affected by *Arcanobacterium pyogenes* and clinical signs of purulent discharge (E3) were significantly ($p<0.05$) higher than other groups. The large vacuolated epithelial cells percentage in cervical mucosa were higher significantly ($p<0.05$) than that percentage in uterine fluid. The result of this study couldn't show any significant differences between neutrophils percentages of cervical mucosa and uterine fluid smear in cows with three classifications. Therefore, cervical sample is practical and applicable in all commercial herds. In conclusion, the cytological evaluation of cervical smear at fresh cows is suitable for diagnosis of subclinical endometritis, planning for treatment and prognosis of fertility after voluntary waiting period of dairy cows. (*International Journal of Dairy Science 4 (1): 19-26, 2009;* ***doi:*** *10.3923/ijds.2009.19.26*)

Evaluation of Goat Milk Containing Galactooligosaccharides After Supplementing the Ration with Amino Acids

Mervat I. Foda, S.M. Kholif and A.M. Kholif

The aim of this study was to evaluate the effect of supplementing goat's ration with different forms of lysine and methionine on milk production, its chemical composition and consumer's acceptability. To maximize goat milk benefits, different concentration of β-D-galactosidase were used to form galacto-oligosaccharides after supplementing the ration with lysine and methionine in protected and unprotected forms. Milk acceptability and its chemical composition were evaluated compared to control samples. The results showed that milk fat, lactose, total protein and milk yield were increased by adding the amino acids in both different forms. Organoleptic evaluation indicated significant increase in taste and overall acceptability of goat milk containing higher concentration of galactooligosaccharides. Also, supplementing goat ration with these amino acids should be recommended to increase milk production and its contents. Formation of galactooligosaccharides in goat milk could be recommended to decrease most of infant's allergy and diseases. (*International Journal of Dairy Science 4 (1): 27-33, 2009; **doi**: 10.3923/ijds.2009.27.33*)

Aflatoxin Transfer from Naturally Contaminated Feed to Milk of Dairy Cows and the Efficacy of a Mycotoxin Deactivating Product

Amedeo Pietri, Terenzio Bertuzzi, Gianfranco Piva, Eva Maria Binder, Dian Schatzmayr and Inês Rodrigues

This study reports the results of an experiment, testing the aflatoxin B_1 (AfB_1) carry-over from naturally contaminated feed to the dairy cows' milk in the absence and in the presence of a mycotoxin deactivating product-Mycofix® Plus (MPL). The study was carried out using 18 healthy animals divided into 3 homogeneous groups of 6 animals each. The experimental design was a 3×3 Latin square with three periods of 7 days each without washout periods. The treatments were: (1) control diet without MPL (CTR); (2) control diet with 20 g/cow/day of MPL (T_1) and (3) control diet with 50 g/cow/day of MPL (T_2). The diet was a Total Mixed Ration (TMR) and 1 kg of a naturally contaminated maize meal (AfB_1 = 91.7±4.4 μg kg^{-1}) was included in the diet of each cow. Each animal ingested daily 97.3 μg kg^{-1} AfB_1 since the analysis of the TMR before inclusion of the

contaminated maize revealed however the presence of 0.24 μg kg^{-1} DM of AfB_1, corresponding to 5.6 μg per cow per day. In T_1 and T_2 diets, MPL was mixed with the contaminated maize meal. Feed intake and individual daily milk production were recorded during the study. Morning and evening milk samples from each cow were collected on day seven of each week. Samples derived from individual cows were mixed in proportion to the morning and evening milk production and then again combined in proportion to the daily milk production of each cow to constitute a representative bulk milk sample of each group; these samples were analyzed to determine the aflatoxin M_1 (AfM_1) content. The addition of MPL did not influence feed intake and milk production. The addition of MPL to the diet reduced significantly ($p<0.01$) the milk AfM_1 content from 0.120 μg kg^{-1} (CTR group) to 0.083 μg kg^{-1} (-31%, T_1 group) and 0.072 μg kg^{-1} (-41%, T_2 group). (*International Journal of Dairy Science 4 (2): 34-42, 2009; **doi:** 10.3923/ijds.2009.34.42*)

Effects of Partial Replacement of Berseem Hay by Corn Stalk with or without Calcium Salts of Fish Oil on Rumen Fermentation, Productive and Reproductive Performance of Early Lactating Cows

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Ninety early lactating Holstein dairy cows were assigned among 6 groups (15 each) to investigate the effect of dietary partial replacement of Berseem Hay (BH) by Corn Stalk (CS) with or without Calcium Salts of Fish Oil (CaSFO) supplementation on ruminal fermentation characteristics, productive and reproductive performance as well as on some blood serum parameters from 1st week after calving through 12 weeks postpartum. Three experimental diets were formulated without or with CaSFO supplementation to be fed to 6 cows groups (15 per each). Cows fed on 10 or 20% of CS diets loss more body weight, suffering from more negative energy balance and eat less dry matter than control, however, milk-to-feed ratio improved by about 2.5 and 3.8%, respectively compared with control. On the other hand CaSFO supplementation reduced body weight loss, improved feed intake, lessened the negative energy balance and slightly improved milk-to-feed ratio by about 1.3, 0.0 and 0.6%. CS significantly affect ruminal fermentation by production more propionate and less acetate compared with control while, fat supplementation had no significant effect on the rumen fermentation characteristics. CS (10 or 20%) feeding reduced milk

production across the experiment by about 1.9 and 5.6%, respectively when compared with control, while milk production improved with fat supplementation. However, either CS or CaSFO supplementation had no significant effect on milk composition. Moreover, CS feeding had no effect ($p > 0.05$) on serum glucose and non-esterified fatty acids at 8th or 12th week postpartum. While CaSFO increased ($p > 0.05$) serum glucose concentration and mostly non significantly reduced NEFA concentration. Also, CS had no effect on the reproductive performance and fat supplementation showed a trend toward improving reproductive performance as indicated by increased percentage of pregnant cows in the first 28 days of breeding. It could be concluded that CS inclusion up to 20% with CaSFO supplementation (11 g kg^{-1} diet) may offer a potential management practice to improve productive and reproductive performance in dairy cattle. (*International Journal of Dairy Science 4 (2): 43-56, 2009;* ***doi:*** *10.3923/ijds.2009.43.56*)

Weather Effect on Bacterial Mastitis in Dairy Cows

M.S. Shathele

The study was carried out to determine the effect of seasons on bacterial mastitis in dairy cows. Three years health data from A and M Dairy Farm was analyzed to provide baseline information on the incidence and seasonal pattern of mastitis. Mean annual incidence of clinical mastitis at A and M dairy Farm was 16.5%. A clear pattern of higher incidence of mastitis was observed when the ambient temperature was less than 21°C in cold months during the whole study period (3 years) at A and M dairy Farm. In another study, milk samples of new case of mastitis from A and M dairy were examined for the presence of bacteria. The annual incidence of mastitis at the J. B. Dairy Farm was 14.4%. The annual pattern of incidence of mastitis in relation to ambient temperature was similar to that observed at A and M dairy Farm. Environmental and contagious mastitis pathogens were identified in 43.3% of the clinical mastitis cases and the coliform mastitis accounted for 21.1% of the clinical cases at J.B. Dairy Farm. However, out of 90 new cases of mastitis considered at the J.B. Dairy, 21.1% were infected with coliform bacteria, 12.2% with *S. haemolyticus*, 11.1% due to *C. bovis*, 10.0% with *S. aqalactiae* and 45.5% with other isolates. In conclusion, the coliform bacteria were the main cause of bacterial mastitis with higher incidence during the cold months. (*International Journal of Dairy Science 4 (2): 57-66, 2009;* ***doi:*** *10.3923/ijds.2009.57.66*)

Assessment of Freeze-Dried Hydrodistilled Extracts from Clove; Caraway and Coriander Herbs as Natural Preservatives for Butter Oil

Hanaa F.M. Ali

Antioxidant activities of Freeze-Dried Hydrodistilled (FDH) extract of three herbs; clove, (*Syzygium aromaticum* L.); caraway (*Carum carvil* L.) and coriander (*Coriandum satvium* L.) was evaluated *in vitro* by iron reduction; iron chelation and inhibition of lipid peroxidation methods. Also, total phenols content and the extraction yield was determined. Furthermore, simple model of butter oil was designed for evaluate the produced extracts as natural preservatives. Acid value, peroxide value and thiobarbituric acid (TBA) test were determined for oxidation system of butter oil. Antioxidant activity of clove FDH extract was significantly higher than caraway and coriander extracts when evaluated in iron reduction; iron chelation and inhibition of lipid peroxidation methods. Based on acid value, peroxide value and thiobarbaturic acid test, different FDH extracts exhibited antioxidant effect specially at rate of 400 ppm from individual extracts with order of clove>coriander >caraway. Also, different correlation relationships were recorded in present study. (*International Journal of Dairy Science 4 (2): 67-73, 2009; **doi:** 10.3923/ijds.2009.67.73*)

A Study on Some Factors Affecting Mortality Rates in Sudanese Nubian Kids

Kamal El-Hassan El-Abid and A.M.A. Abu Nikhaila

This study was conducted under natural range conditions at a semi-arid region of Sudan (Abu Deleig), during 1998 B 2000. One hundred and eighteen Sudanese Nubian kids, of both sexes were allowed to suckle freely colostrum for the first three days following parturition. Thereafter, they were allowed to suckle all the morning milk and half of the evening milk, for three months and then weaned. The incidence of death among the kids, were closely monitored and related to a number of factors: including type of birth, sex of kid, birth weight, dam parity order, season of kidding and age of kid. The results revealed that the abortion, pre-weaning and overall kid mortality rates were 21.2, 15.2 and 36.4%, respectively. Type of birth, sex of kid, birth weight of kid, parity order, season of kidding and age of the kid significantly affect kid mortality rates. The study indicated that, by instituting adequate management improvement action in addition to selection for larger kids at birth, the productivity of goat could be improved.

(*International Journal of Dairy Science 4 (2): 74-79, 2009; **doi:** 10.3923/ijds.2009.74.79*)

Chemical, Microbial Counts and Evaluation of Biogenic Amines During the Ripening of Egyptian Soft Domiati Cheese Made from Raw and Pasteurized Buffaloes Milk

Rafaat M. Elsanhoty, H. Mahrous and Ghanaimy A. Ghanaimy

This study was conducted to compare the usage of raw, pasteurized and pasteurized buffalo milk with starter culture in the manufacture of Egyptian soft Domiati cheese. In addition, evaluate the chemical, microbial characterization and evaluation of biogenic amines throughout the ripening. The physical and chemical properties of the manufactured cheese were different. Soluble nitrogen, salt as well as pH values were higher in raw milk cheese in comparison with pasteurized milk cheese and pasteurized milk cheese with starter culture. Considerable changes had occurred in raw milk cheese during the storage period more than these with pasteurized milk cheese and pasteurized milk cheese with starter culture. Cheese made from raw milk showed higher microbial counts during ripening than those made from pasteurized milk. Raw milk cheese showed remarkably higher biogenic amines compared with pasteurized milk cheeses. Therefore, pasteurization of milk led to a decrease in final biogenic amine content of cheese as a result of the reduction of its microbial population. The obtained results suggest that, pasteurization greatly improves the keeping quality of soft Domiati cheese and increase its shelf life and decrease the formation of biogenic amines. (*International Journal of Dairy Science 4 (2): 80-90, 2009; **doi:** 10.3923/ijds.2009.80.90*)

Evaluation the Degree of Whey Protein Concentrate 80 Hydrolysis on the Health Benefits Amino Acids Content Need of the Human Body

A.S. Gad and A.F. Sayed

Whey protein concentrate (WPC 80) was modified by partial hydrolysis with Protamex to 5, 10, 15 and 20% degree of hydrolysis (DH). Whey protein concentrate 80 and its hydrolysates were analyzed, compared to FAO/WHO/UNU amino acid requirement pattern based on amino acid requirements of preschool-age child. The enzymatic hydrolysis of WPC 80 leads to numerous alterations in protein functional characteristics, like changes in

solubility. The pH-protein solubility profiles of WPC 80 and its hydrolysates were used to determine protein solubility. A modified method of AOAC was used to determine Cysteine, Branched-Chain Amino Acids (BCAA) and Tryptophan at various degree of hydrolysis. Results showed that modified whey protein concentrate by partial hydrolysis degree at 15% were highly solubility and the global amino acids determined in an optimal content that makes them appropriate for food formulations as a source of health benefits amino acids. (*International Journal of Dairy Science 4 (3): 91-99, 2009;* ***doi:*** *10.3923/ijds.2009.91.99*)

Prevalence and Significance of *Staphylococcus aureus* and Enterobacteriaceae species in Selected Dairy Products and Handlers

H.M. Fadel and Jehan Ismail

Some of the Egyptian dairy products are made by traditional methods. This makes them suitable media for multiplication of foodborne pathogens. So, this study aims to assess the microbial quality of selected dairy products prevalent in Ismailia City, the personal hygiene of dairy handlers and the potential hazards to consumers. A total of 120 Ras cheese, Kareish cheese and ice cream samples were collected randomly from different localities in Ismailia city. In addition, 40 nasal and hand swab samples were collected from some dairy workers. All samples were examined for presence of *Staphylococcus aureus* (on Baird Parker agar medium) and Enterobacteriaceae sp. (on Violet Red Bile Glucose agar medium). Molecular typing of *S. aureus* was performed using PCR Assay. The prevalence and significance of *Staphylococcus aureus* and Enterobacteriaceae species in Ras cheese, Kareish cheese and ice cream samples and in swabs of dairy handlers in Ismailia city were studied. The results of this study revealed out that the mean values of *S. aureus* counts ($\log_{10}$ cfu g^{-1}) in Ras cheese was 5.54, in Kareish cheese was 5.59 and in ice cream samples was 4.07. Meanwhile, the mean values of Enterobacteriaceae sp. counts ($\log_{10}$ cfu g^{-1}) in Ras cheese was 2.48, in Kareish cheese was 6.78 and in ice cream was 1.11. Salmonella could not be recovered in the examined dairy products. *Staphylococcus aureus* was isolated from 60 and 70% of dairy handlers hand's and nasal swab samples, respectively. Only one *Salmonella* strain was recovered from a dairy handler swab. Overall, the recovered *E. coli* serotypes from all the examined samples were O15:H11, O22:H5, O25: NM, O26:H11, O86:H34, O91:H10, O113:H21, O114:H2, O119:H6, O124:H7, O128:H2, O127:NM and O145:NM. In conclusion,

the isolated serotypes constitute public health hazards to consumers. (*International Journal of Dairy Science 4 (3): 100-108, 2009; **doi:** 10.3923/ijds.2009.100.108*)

Evaluation of Vaccination with *Brucella abortus* RB51 Strain in Herds Naturally Infected with Brucellosis in Productive Systems Found in Tropical Climate

A. Peniche Cardeña, D. Martínez Herrera, J.L. Franco Zamora, F. Barradas Piña, B. Molina Sánchez, E.J. Gutiérrez Ruíz, J.J. Williams, F. Morales Alvarez and R. Flores Castro

In this study, the efficacy of vaccination with *Brucella abortus* RB51 strain as a measure for bovine brucellosis control was evaluated by a clinical assay in double purpose cattle that are naturally infected under tropical conditions. A herd with eight reactors to rivanol test with an initial serum reaction of 5% was selected. Confirmation of infected herd was carried out by isolation and identification of *Brucella abortus* from reactor animals, using bacteriological procedures. Also, the milk samples were analyzed by PCR technique whereby *Brucella abortus* infection was corroborated. Vaccinated and non-vaccinated groups were formed with 88 females each. Reactors were not eliminated nor segregated from the population. During 18 months of monitoring three new cases happened in the vaccinated group and therefore the initial serum reaction rate increased from 10 to 12.5%. The rate of vaccinated group remained at 0% due to 100% of protective efficacy that RB51 strain provided to the total vaccinated population (RR = 0; C.I. 95% 0-0). The conclusion is that under extensive double purpose livestock rearing conditions tropical climate, strain RB51 is a biological product efficacious for brucellosis control in infected herds with a prevalence of 6%. (*International Journal of Dairy Science 4 (3): 109-116, 2009; **doi:** 10.3923/ijds.2009.109.116*)

Prevalence and Current Antibiogram Trend of Mastitic Agents in Udgir and its Visinity, Maharashtra State, India

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The study was carried out to investigate the current antibiogram status of clinical mastitis among bovines in and around Udgir. The prevalence of mastitis was assessed by the results of bacteriological evaluation of milk samples collected from

clinical mastitis cases. A total of hundred clinical cases of mastitis were studied for isolation followed by antibiotic sensitivity test. The major prevalent pathogens isolated were *Staphylococcus aureus*, *Escherichia coli* and *Candida*. Antibiogram studies indicated that ciprofloxacine was the most effective antibiotic followed by gentamicin, enrofloxacine, chloramphenicol and cephotaxim. The least effective antibiotics include cloxacillin followed by ampicillin, streptomycine, oxytetracycline, amoxyciine, doxyciline and ceftriaxone. It was concluded that microbiological and antibiogram studies are necessary for treatment and control of bacterial mastitis. (*International Journal of Dairy Science 4 (3): 117-122, 2009;* ***doi:*** *10.3923/ijds.2009.117.122*)

Association of BoLA-DRB3.2 Alleles with Resistance and Susceptibility to Persistent Lymphocytosis in BLV Infected Cattle in Argentina

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The objective of this preliminary study was to describe alleles of bovine major histocompatibility complex class II BoLA-DRB3.2 gene associated with resistance and susceptibility to Persistent Lymphocytosis (PL) in *Bovine leukaemia virus* (BLV) infected cattle, to set a direction for the future studies. A total of 81 dairy cattle in Argentina were investigated for the distribution of BoLA-DRB3.2 alleles. The study cattle were categorized into 3 groups as follows: Category PL^+ (BLV seropositive with PL); Category PL^- (BLV seropositive without PL) and Category BLV^- (BLV seronegative). The alleles were identified by polymerase chain reaction with subsequent analysis of restriction fragment length polymorphism. The association between the BoLA-DRB3.2 alleles and the PL^+ and PL^- categories was determined as the odds ratio. Some alleles BoLA-DRB3.2 mediating (1) resistance and (2) susceptibility to PL were observed, respectively. A stochastic model including Shannon's diversity index calculation was run based on Markov-Chain Monte Carlo simulation method. The Shannon's diversity indices in each of the cattle categories indicated that the richness of gene diversity decreased as leading to a clinical stage of BLV. This relates to the existence of alleles mediating resistance and susceptibility to PL. The stochastic prediction with inclusion of uncertainty is important which can serve as a future study beacon. (*International Journal of Dairy Science 4 (3): 123-128, 2009;* ***doi:*** *10.3923/ijds.2009.123.128*)

Study of Manufacture and Shelf-Life of Indian Dietetic and Diabetic *Rosogolla*

R.S. Chavan, P.S. Prajapati, S.R. Chavan and C.D. Khedkar

Dietetic and diabetic *Rosogolla* was manufactured by using low-fat cow milk. Twelve different combinations viz., type of chhana, cooking medium (double refined cane sugar syrup and sorbitol solution) and two different concentrations (40° and 50° Brix). All of the experimental samples and control samples were then analyzed for physico-chemical, textural and sensory properties. A 40° Brix concentration irrespective of the type of cooking medium was preferred to give a highly acceptable *Rosogolla*. The average composition of dietetic and diabetic *Rosogolla* is, moisture-49.83 and 52.20%, fat-4.66 and 4.46%, protein-11.85 and 12.78%, sucrose/sorbitol-32.41 and 29.66% and ash-0.90 and 0.89%, respectively. The hot *Rosogolla* of both types were packed in polyethylene terepthalate (PET) jars and stored for 40 days and 6 days at refrigerated (7±2°C) and room (26±2°C) temperature respectively. During storage pH of dietetic, diabetic and control *Rosogolla*, decreased, while free fatty acids, 5-hydroxy methyl furfural and soluble nitrogen content increased with the advancement of the storage irrespective of the storage temperature. Total viable count and yeast and mould count increased slowly in the samples stored at 7±2°C, but very sharply when stored at 26±2°C. Coliform count in both temperatures was observed to be zero. (*International Journal of Dairy Science 4 (4): 129-141, 2009;* ***doi:*** *10.3923/ijds.2009.129.141*)

Evaluation of Vaccination with *Brucella abortus* S19 Vaccine in Cattle Naturally Infected with Brucellosis in Productive Systems Found in the Mexican Tropic

A. Peniche Cardeña, D. Martínez Herrera, J.L. Franco Zamora, F. Barradas Piña, B. Molina Sánchez, E.J. Gutiérrez Ruíz, J.J. Williams, F. Morales Alvarez and R. Flores Castro

Efficacy of vaccination with *Brucella abortus* S19 vaccine as control measure against bovine brucellosis has been controversial; therefore, it is necessary to know the efficacy of this vaccine under different field conditions. In this study, a clinical assay was performed to establish the efficacy of this vaccine on double purpose cattle. Two groups of one hundred animals each were formed. Infected cattle were not eliminated or segregated. One herd was identified as infected, with

four animal reactors to Card Test (CT) and confirmed by Rivanol Test (RT) with a serum reaction rate of 1.2%. Confirmation of infected herd was carried out by isolation and identification of *Brucella abortus* colonies and PCR on milk samples from RT reactor animals. In 18 months, the number of infected animals increased to eight females, seven within the non-vaccinated group and one in the vaccinated group for a serum reaction rate in the non-vaccinated group of 5.8% and the vaccinated one of 0.8%. Thus, in this period the accumulated serum reaction rate for both groups was increased from 1.2 to 3%. Vaccination efficacy of strain S19 was 86% and the risk of getting the disease in these animals was very low (RR = 0.112; $I.C._{95\%}$ 0.014-0.887). It is concluded that strain S19 vaccine is efficacious in the control of brucellosis in herds with a 3% prevalence of the disease; yet, before its use, interference of diagnosis problems that are produced should be assessed to properly evaluate economics and vaccination efficiency. (*International Journal of Dairy Science 4 (4): 142-151, 2009;* ***doi:*** *10.3923/ijds.2009.142.151*)

A Study on Some Non-Genetic Factors and their Impact on Some Reproductive Traits of Sudanese Nubian Goats

K. El-Hassan, El-Abid and A.M.A. Abu Nikhaila

The objective of the current study was to estimate reproductive parameters of Sudanese Nubian goat under extensive management system. The data of eighty-six parities of Sudanese Nubian goats were used; the parities occurred during the period from October 1998 to August 2000, to a parent stock raised on traditional pastoralism. These parities were used in completely randomized design to investigate the effects of grazing supplementation, season of kidding and parity order on the pattern of recurring estrous cycles during the year, gestation length, service period, kidding interval and kidding rate. The results indicated non seasonal pattern of ovarian cyclicity, the gestation length averaged 148.57±3.60 days. Nutritional supplementation, season of kidding and parity order had non-significant effect on gestation length. The service period averaged 148.29±62.38 days. Nutritional supplementation and season of kidding exerted a significant ($p<0.05$) effect on service period. However, the parity order had a non-significant effect on service period. The average kidding interval was 278.05±75.19 days. Nutritional supplementation, season of kidding and parity order had non-significant effect on kidding interval. Litter size was 1.12±0.36 kids. Nutritional supplementation, season of kidding and parity order had non-significant effect on litter size. (*International Journal of Dairy Science 4 (4): 152-158, 2009;* ***doi:*** *10.3923/ijds.2009.152.158*)

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

T. Madani, F. Chouia and K. Abbas

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

D. Kiliçalp, S. Dede, Y. Deger and L. Aslan

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.)

V. Ayhan, A. Tolunay and E. Adiyaman

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

N. Tugba Bingol, M. Akif Karsli, D. Bolat, I. Akca and T. Levendoglu

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

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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

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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

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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

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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

H. Önder, M. Akif Çam and E. Soydan

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)*