Effect of Dietary Triticale Levels and Enzyme Supplementation on Performance, Gut Morphology and Blood Chemistry of Very Young Broiler Chicks


Received: 23-9-2010
Accepted: 17-10-2011

Abstract

The present study was carried out to investigate the effect of different levels of triticale with/without enzyme cocktail (xylanase and β-glucanase) on performance of broiler chicks. Five hundred day old male broiler chicks (Ross 308), assigned to a factorial arrangement (5×2) with a completely randomized design with 5 replicates of 10 chicks each. The factors included 5 levels of triticale (0, 8, 16, 24 and 32%) and 2 levels of enzyme cocktail (0 and 0.05%). The experimental diets were isocaloric and isonitrogenous and were fed ad-libitum from 0 to 10 d of age. The live body weight in 10 d and daily weight gain significantly decreased and feed conversion ratio significantly increased with increase in the level of triticale up to 16% and more. The gut viscosity, gastro intestinal tract organ relative weight were significantly increased with increase in triticale level and in birds fed the diet with 32% level of triticale showed a shorter villi compared with the longer villi in those fed the corn-soy diet. The exogenous enzyme supplementation significantly affects broiler performance and reduced anti-nutrient effects of triticale. The use of different levels of triticale and enzyme supplementation did not significantly affect on chicks blood chimistry. In conclusion, this study revealed that starter diets containing up to 8% of triticale did not have an adverse effect on performance of broiler chicks.

Keywords: Chicks, Enzyme supplementation, Gut morphology, Gut viscosity, Performance, Triticale

1,2,3,4,5- PhD Student, Professors and Associate Professors, Department of Animal Science, College of Agriculture, Ferdowsi University of Mashhad, Respectively
(*- Corresponding Author Email: hzarghi@yahoo.com)
Performance of Broiler Chicks fed Cottonseed and Soybean Meal Based Diets and Determination of the Optimum Supplemental Lysine in Starts Period


Received: 13-11-2010
Accepted: 9-1-2012

Abstract

An experiment was conducted to determine the optimal level of supplemental lysine in a corn-soybean meal-cottonseed meal starter diet. Three hundred and sixty day-old male chicks (Ross 308) were used in a completely randomized design (15 birds per each pen). A basal diet was formulated to meet or exceed NRC (1994) recommendations except for lysine. Graded levels of supplemental lysine (0, 0.1, 0.2, 0.3, 0.4, and 0.5% of diet) were added to the basal diet at the expense of corn starch. At 14d of age, performance and carcass attributes including body weight gain (BGW), feed conversion ratio (FCR), feed intake (FI), breast meat yield (BMY), and thigh yield (TY) were assessed. The results showed that lysine supplementation significantly improved BGW, FCR, FI, BMY, and TY. To determine the optimum level of supplemental lysine, modeling approach was applied and inflection point in spline models was considered as an optimum point. Using linear broken-line model, inflection points for BWG, FC, BMY, TY were 0.24, 0.26, 0.35, and 0.22% of diet, respectively. These values in quadratic broken-line model were 0.39, 0.15, 0.52, and 0.33% of diet, respectively. In conclusion, the usage of cottonseed meal in starting broiler chicks may increase the needed supplemental lysine in the diet due to low amino acid digestibility of cottonseed meal. Although the optimum level of supplemental lysine depends on response criteria and statistical model, required supplemental lysine for BMY was higher than others.

Keywords: Broiler chick, Cottonseed meal, Lysine, Broken-line model, Performance

1- MSc of Animal Nutrition, Especial Center of Domesticated Animal Research, University of Zabol
(*-Corresponding Author Email: rezazaboly@yahoo.com)
2,3,5- Assistant Professors, Department of Animal Science, Faculty of Agriculture, University of Zabol
4- Assistant Professor, Department of Agronomy Science, Payam Noor University of Zahedan
6,7- MSc of Animal Science, Department of Animal Science, Faculty of Agriculture, University of Zabol
Effect of Various Types and Levels of Organic Selenium on Poultry Production, Egg Quality and Selenium Enrichment of Eggs

F. Asadi¹ - F. Shariatmadari²* - M.A. Karimi Torshizi³

Received:12-12-2010
Accepted:9-1-2012

Abstract

A eight-week trial was carried out to investigate the effects of various levels and type of organic selenium as compared to inorganic selenium. Total of 81 layer hens (LSL) 35 weeks of age were used in a randomized complete blocks with 9 treatments, 3 replications of 3 birds per experimental unit. Treatment diets included control 0/3 mg/kg sodium selenite and selenium yeast, (250 mg/kg, 500 mg/kg). Qualitative characteristics of storing eggs under different conditions (23- 7°C) for 14 days determined. Haugh unit of keeping eggs in room (23-27°C) was significantly (P<0.05). Egg weight (P<0.05) and shell weight (P<0.01) of keeping eggs in (4°C) were influenced Treatment diets. Malondialdehyde (MDA) values in egg yolks were increased (P<0.01) during storage and this increase was associated to temperature of storing. During the storage, eggs from selenium supplemented treatments had lower MDA values than those from the non-supplemented ones (P<0.01). The selenium content of egg increased with additional inclusion of selenium into diet, and this was more evident with organic selenium (P<0.05). There were differences in effectiveness of organic selenium source on selenium concentration. It could be concluded that higher organic selenium content results to a higher selenium egg without affecting layers performances.

Keywords: Organic and Inorganic Selenium, Laying hen, Egg enrichment

¹,²,³- MSc Student, Professor and Assistant Professor, Department of Poultry Science, Agricultural Collage, Tarbiat Modares University, Respectively
(*- Correspondent Author Email: shariatf@modares.ac.ir)
Effects of Enzyme and Organic Acid in Wheat and Corn Based diets on Performance and Intestinal Morphology of Broilers

M.H. Shahir¹ - S. Moradi² - O. Afsarian³* - A. Heidarinia⁴

Received:20-1-2011
Accepted:14-12-2011

Abstract

The aim of the present experiment was to determine the effects of Grindazym enzyme (0 or 0.4 g/kg diet) and sodium butyrate (0 or 2 g/kg diet) addition in corn and wheat based diets on performance, carcass traits, and intestinal morphology of broiler chickens. A total of 480 male Arbor Acres chickens were assigned to 8 dietary treatments, and each treatment was included 4 replicate, with 15 birds per each replicate (pen). The experiment was performed in a 2×2×2 factorial trial based on completely randomized design. At the end of experiment, 2 birds from each pen were randomly selected and slaughtered by cervical dislocation. Results showed that the type of cereal in the basal diet, the enzyme and sodium butyrate had significance (P<0.01) effects on feed intake throughout the trial. Although effects of the type of basal diet and enzyme addition on weight gain was significant (P<0.01), but weight gain was not affected by the addition of sodium butyrate on the basal diet. The type of basal diet had a significant (P<0.01) effect on feed conversion ratio of broiler chickens. The relative weights of gizzard, pancreas, liver and relative length of intestine were significantly (P<0.05) increased by wheat based diet. The type of basal diet and sodium butyrate additions were significantly (P<0.05) improved villus type and dimensions. In conclusion, the results of this experiment showed that the best of performance was achieved when broilers fed with enzyme and sodium butyrate in corn and wheat based diets.

Keywords: Corn, Wheat, Enzyme, Sodium butyrate, Broiler chicken

1,2,3,4- Assistant Professor, Former MSc Student and PhD Students, Department of Animal Science, College of Agriculture, University of Zanjan, Respectively

(*- Corresponding Author Email: omid.afsarian@znu.ac.ir)
Comparison of Multiple Linear Regression and Artificial Neural Network Models to Estimate of Amino acid Values in Pearl Millet Hybrid Based on Chemical Composition

P. Soleimani Roudi1- A. Golian2- M. Sedghi3*
Received: 6-3-2011
Accepted: 20-9-2011

Abstract

Pearl millet has tolerance to harsh growing conditions such as drought. It is at least equivalent to maize and generally superior to sorghum in protein content and metabolizable energy levels. Thus it is of importance for poultry feeding. Amino acid (AA) determination is expensive and time consuming. Therefore nutritionists have prompted a search for alternatives to estimate AA levels. Traditionally, two methods of predicting AA levels have been developed using multiple linear regression (MLR) with an input of either CP or proximate analysis. Artificial neural networks (ANN) may be more effective to predict AA concentration in feedstuff. Therefore a study was conducted to predict the AAs level in pearl millet with either MLR or ANN. Fifty two samples of pearl millet’s data lines contained chemical compositions and AAs which collected from literature were used to find the relationship between chemical analysis as xi and AA contents as y. For both MLR and ANN models chemical composition (dry matter, ash, crude fiber, crude protein, ether extract) was used as inputs and each individual AA was the output in each model. The results of this study showed that it is possible to predict AAs with a simple analytical determination of proximate analysis. Furthermore ANN models could more effectively identify the relationship between AAs and proximate analysis than linear regression model.

Keywords: Amino acid, Neural network model, Pearl millet

1,2,3- PhD Student, Professor and PhD Student of Poultry Nutrition Animal Science Department, Ferdowsi University of Mashhad, Respectively
(*- Corresponding Author Email: mohamad_sedghi1@yahoo.com)
Changes of Blood Gas Parameters, Hematocrit Value and Internal Organ Weights with Induced Ascites in Broiler Chicken

M. Naghous1*- A Pakdel2- R Vaez Torshizi3

Received:6-3-2011
Accepted:9-1-2012

Abstract

In order to evaluate the effects of ascites on blood gas parameters and internal organ weights, 335 broilers related to parental lines was studied. One hundred sixty-one male broilers and one hundred seventy-four females selected randomly and studied under two treatments of control and ascites. At 54 days of age, body weight and body weight gain, feed intake and feed conversion rate between the age of 23 and 54 days were determined. At 28, 35, 42 and 54 days of age, blood gas parameters were evaluated. Moreover hematocrit value at 14, 21, 28, 35, 42 and 54 days of age were evaluated. At the end of experiment, all birds slaughtered then the weight of abdominal fat, liver and spleen were measured. Fluid in the abdomen, color of the breast and liver were assayed. Moreover mortality resulted from ascites in total period experiment was recorded. Result from body weight, Feed conversion rate and feed intake showed that there were no significant between two groups while in males broilers body weight gain was significant (p<0.05). The result of internal organ weights showed that the weight of liver and spleen were the same in two treatments but abdominal fat was significant between two groups. Right ventricle to total ventricle ratio of males ascites was greater (p<0.01) than that of control males although right ventricle to total ventricle ratio of females were not significant. Fluid in the abdomen, color of the breast were not significant between two groups but color of liver was significant (p<0.01). In this study, partial pressure of oxygen in venous blood (pvO2) and partial pressure of carbon dioxide in venous blood (pvCO2) and hematocrit value were only significant in male broilers at 54 day of age. O2 saturation in venous blood was significant in male broilers at 35, 42 and 54 days of age. Based on the conditions of this study it was concluded that hematocrit value is not suitable for predict ascites and O2 saturation in venous blood maybe useful for distinguish ascites broilers.

Keywords: Ascites, Blood Gas Parameters, Hematocrit Value, Internal Organ Weights

1,2- MSc Student and Associate Professor, Department of Animal Science, Faculty of Agriculture and National Resource, University of Tehran, Karaj
(*- Corresponding Author Email: mehinaghoussi@gmail.com)
3- Associate Professor, Department of Animal Science, Faculty of Agriculture, University of Tarbiat Modares, Karaj
Effect of Dietary Electrolyte Balance on Performance and Immune Responses of Broiler Chickens Reared in the Heat Stress Environments

B. Ashrafi¹ - A. Hesabi² - R. Vakili³

Received: 3-6-2011
Accepted: 4-12-2011

Abstract

This study was conducted to evaluate the effect of different levels of electrolyte dietary balance (DEB) on performance and immune function of broiler chickens reared under the heat stress condition. Three hundred one-day chickens were distributed randomly in 25 separate Pens with 12 chicks in each. This experiment was in the form of a completely randomized design with five treatments and five replications and different levels of electrolyte dietary balance (EDB), including 50, 150, 250, 350 and 450 meq/kg dedicated on corn-soybean based diets. To study immune responses, 0.5 ml intramuscular injection of sheep red blood cells (5%) on days 18 and 30 and antibody response against Newcastle and Bronchitis was used. In 28 to 42 days, chickens for 4 hours under 35 °C heat stress were studied. The average weight of chickens in the fourth week in DEB 250 was higher while sixth week the highest mean weight in chickens was DEB 350. Maximum feed intake in the third week in 250 DEB, but the fourth to sixth weeks greatest amount of feed intake in 350 EDB were observed. Effect of different levels of EDB on feed conversion ratio was not significant. Effect of EDB on primary and secondary immune responses was significantly in 6 and 12 days after inoculation (primary immune response), most SRBC antibody response in 450 EDB. Similarly, in 6 and 12 days after injection (secondary immune response), the highest antibody, respectively, 350 and 450 EDB was observed. Equilibrium level of 350 DEB was highest antibody titer against Newcastle and bronchitis (P<0.05). The results of this experiment showed that levels of EDB 250 and 350 improved the performance and immune response of broiler chickens, level of 250 EDB for normal rearing temperature and level of 350 EDB in the high temperature and thermal stress conditions are suitable.

Keywords: Dietary electrolyte balance, Immune response, Heat stress, Broiler chickens

1,3- Former MSc Student and Assistant Professor, Department of Animal Science, of Azad Islamic University, Branch of Kashmar
(*- Corresponding Author Email: bashrafi2009@yahoo.com)
2- Assistant Professor, Department of Animal Science, Agricultural And Research Center, Mashhad
Effects of Mesolites from Moghueieh Region and their Particles Size on Performance, Blood Biochemical Parameters and Nutrient Digestibility in Broiler Chickens

J. Gholami1* - M.H. Fooladi2 - M. Salarmoini3
Received: 13-8-2011
Accepted: 21-12-2011

Abstract

In this study the effects of mesolites from Moghueieh region and their particles size on performance, blood biochemical parameters and nutrient digestibility in broiler chickens were evaluated. The experiment was conducted on a completely randomized design with three treatments: without mesolite (control) and with fine particle mesolite (passed of 1 mm sieve and stay in 0.225 mm sieve) or large particle mesolite (passed of 3.36 mm sieve and stay in 1.68 mm sieve). Mesolite added in amount of 2% in diet from 7 day of age. Results indicated that chickens fed large particle mesolite showed reduced performance and fine particle mesolite had no effect on broilers performance. When compared with the controls, body weight gains were significantly lower for birds fed diets containing large particle mesolite. Birds fed large particle mesolite showed higher feed conversion ratio. At the end of the experiment (42 day of age), control group had higher serum TG. Concentration of serum HDL in chickens fed large particle mesolite was higher than control group. Level of serum alkaline phosphatase, glucose, albumin, thyroxin, cholesterol, LDL and uric acid and digestibility of dry matter and protein were not affected by treatments.

Keywords: Mesolite, Performance, Biochemical parameters, Digestibility, Broiler chickens

1,2,3- MSc Graduated, Associate Professor and Assistant Professor, Animal Science Department, College of Agriculture, Shahid Bahonar University, Kerman, Respectively
(*-Corresponding Author Email: javad_gholami83@yahoo.com)
Investigating the Effect of Red Pepper Powder and Fat on Performance and Blood Parameters of Broiler Chickens


Received: 27-8-2011
Accepted: 14-12-2011

Abstract

An experiment was done in a completely randomized design in the following manner to investigate the effect of different levels of red pepper powder, and fat in diet of broilers chickens. The groups were assigned into factorials (2×3) with four replications, 12 birds per each. Factors tested included three levels of red pepper powder (0%, 1.5 and 3%) and two fat levels (0 and 3%). Feed and water were freely and permanently available to the chicks. Testing period was 42 days. Experimental diets were set with equal energy and protein. Increasing the level of the red pepper powder caused the increase in total feed consumption (FC). Increasing the level of the fat decreased the total consumed feed. The diet including pepper and fat together decreased the total consumed feed. Presence of pepper and fat lonely in the diet resulted in an increase of the body weight but using pepper and fat together in the diet resulted in decreasing the rate body weight gain (BWG). Increasing the levels of red pepper powder and fat caused the reduction of feed conversion ratio (FCR), but when pepper added to diets containing fat, feed conversion ratio decreased. In initial period increasing the levels of pepper from zero to three percent caused the increasing of Cholesterol level and HDL. Also increasing the fat level in diet caused the increasing of HDL. There were no significant difference between the treatments groups when red pepper and fat were used simultaneously in the diet. In the growing period with increasing the percent of red pepper the levels of Cholesterol, Triglyceride, HDL and LDL decreased, and also increasing the level of fat decreased the level of Cholesterol, HDL, LDL but the level of Triglyceride increased. Using the combination of red pepper and fat in the diet decreased Glucose, Cholesterol, Triglyceride, HDL and LDL. In the finisher period increasing the red pepper percent decreased the level of Triglycerid. The combination of red pepper and fat in the diet increased Glucose and decreased the level of Triglyceride.

Keywords: Red pepper powder, Fat, Blood metabolites, Broiler chicks

1,2- Former MSc Student and Associate Professor, Department of Animal Science, College of Agriculture, Ferdowsi University of Mashhad
(*- Corresponding Author Email: hani.arbabian@gmail.com)
3- Assistant Professor, Department of Animal Science, Azad Islamic University, Branch of Kashmar
4- Assistant Professor, High Educational Center of Jahad-e-Keshavarzi Mashhad
The Effect of Iodine Levels Above of NRC Recommendations on Performance and Thyroidal Hormones in Holstein Dairy Cows

M.A. Norouzian1* - R. Valizadeh2 - F. Azizi3

Received: 6-11-2006
Accepted: 7-8-2011

Abstract

In order to survey of using iodine levels above of NRC recommendations on performance and thyroidal hormones, sixteen Holstein dairy cows with the average live body weight and daily milk production of 652 ± 43 and 32.9 ± 2.4 kg respectively, allocated to 4 treatments in a complete randomized design. The dietary treatments were 1) the basal diet (without Potassium Iodide) as control diet, 2, 3 and 4, the basal diet plus 2.5, 5 and 7.5 mg/kg DM Potassium Iodide respectively. The number of replications in each treatment was 4 cows. The dry matter intake (DMI), milk yield and composition were compared between treatments. The iodine concentrations in feed, water, urine and blood as well as thyroidal hormones (T3 and T4) were determined. There were no significant differences between treatments for DMI, milk yield and compositions as well as diet efficiency. Iodine contents in blood and urine were affected by iodine supplementation and increased significantly (P<0.01). Blood T3 and T4 concentrations were not differed between treatments. There were no clinical sings during the experimental period. It seem that using of iodine levels above of NRC recommendation, do not effect on performance and thyroidal hormones of Holstein dairy cows.

Keywords: Iodine requirements, Milk yield, Thyroidal hormones

1- Assistant Professor, Department of Animal Science, College of Aboureihan, University of Tehran
(*- Corresponding Author Email: manorouzian@ymail.com)
2- Professor, Department of Animal Science, College of Agriculture, Ferdowsi University of Mahshad
3- Professor of Shaheed Beheshti University of Medical Science
Determination of Physical, Chemical and Digestibility of some Agricultural by-products

M. Dehghan1, R. Tahmasbi2*, O. Dayani3, A. Khezri4

Received: 5-12-2010
Accepted: 14-12-2011

Abstract

In this experiment, physical and chemical characteristics and estimation of effective fiber and digestibility of some agricultural by-products such as lerd, pulp and date kernel, grape pomace, pistachio hulls, lime and rice straw were determined by using in vitro technique. Experimental data were analyzed as a complete randomized design, with three replicates. Physical and chemical characteristics and digestibility parameters among samples were significantly different. Rice straw due to high water holding capacity and low-density mass were floating on the liquid phase of reticulo-rumen and stimulates rumination but palm seed with high bulk density tends to deposit in the rumen. Chemical characteristics such as non-fibrous carbohydrates of lemon pulp and pistachio hull and crude protein of grape pomace, lerd and pulp of date were significantly different between samples. Results of physical characteristics, particle size separation and physical effective cell wall showed that rice straw provides adequate fiber in diet. Also, to some extent physical effective cell wall can be provided by grape pomace, kernel and lerd of date. The predictions of particle size separation and physical effective cell wall were found to compare reasonably well when new Pennsylvania sieves, compare to old ones, were used. By considering physical and chemical characteristics of above mentioned agricultural by-products date pulp with non-fibrous carbohydrate and high protein content and digestibility can be used in higher amounts in ruminant diets.

Keywords: Physical, Chemical characteristic, Digestibility, Agricultural by-products

1,2,3,4 - Former MSc Student, Assistant Professor, Associate Professor and Assistant Professor, Department of Animal Science, College of Agriculture, Shahid Bahonar University of Kerman, Respectively
(*-Corresponding Author Email: reza.tahmasbi@gmail.com)
Effect of Electron Beam Irradiation on Degradability Coefficients and Ruminal-postruminal Digestibility of Dry Matter and Crude Protein of some Plant Protein Sources

G. Tahan1- M.H. Fathi Nasri2*- A. Riasi3 - M. Behgar4 - H. Farhangfar5

Received:5-6-2011
Accepted:14-12-2011

Abstract

Effect of electron beam irradiation on degradability coefficients and ruminal-postruminal digestibility of dry matter and crude protein of soybean meal, canola meal and Lathyrus sativus seed, irradiated at doses of 50, 100 and 150 kGy was investigated. Ruminal degradability of dry matter and crude protein was determined by in situ method using two cannulated Holstein heifers. Ruminal-postruminal digestibility of dry matter and crude protein was determined by in situ (nylon bag)-in vitro (daisy digestor) techniques. Data analyzed using SAS software as randomized completely design and the treatment means were compared using Tukey test. The results indicated that irradiation had no effect on dry matter, ether extract and ash content of feeds. In soybean meal, washout fraction and potentially degradable fraction of dry matter and crude protein was higher and lower at dose of 150 kGy irradiation than other treatments, respectively, and degradation rate constant and ruminal effective degradability of dry matter and crude protein was lower at all doses of irradiation than untreated soybean meal. In canola meal, irradiation at doses of 50 and 100 kGy decreased washout fraction and increased potentially degradable fraction of crude protein compared with untreated canola meal. In Lathyrus sativus seed, only potentially degradable fraction of dry matter and crude protein was lower at dose of 150 kGy irradiation than untreated Lathyrus sativus seed. Ruminal digestibility of crude protein decreased in soybean meal at doses of 100 and 150 kGy irradiation and for canola meal at all doses of irradiation than untreated samples. Total tract digestibility of crude protein decreased in soybean meal at dose of 150 kGy irradiation and for canola meal at all doses of irradiation than untreated samples. In Lathyrus sativus seed, ruminal-postruminal digestibility and total tract digestibility of dry matter increased at doses of 100 and 150 kGy irradiation than untreated Lathyrus sativus seed. Postruminal digestibility and total digestibility of crude protein of Lathyrus sativus seed increased at all doses of irradiation than untreated Lathyrus sativus seed. Base on the results of this study, beam electron irradiation had different effects on nutritional value of soybean meal, canola meal and Lathyrus sativus seed but it improved protein quality of feeds especially in Lathyrus sativus seed.

Keywords: Electron beam irradiation, Ruminal degradability, Ruminal-postruminal digestibility

1,2,3,5- Former MSc Student, Assistant Professors and Associate Professor, Animal Science Department, Agriculture Faculty, Birjand University, Respectively
(*- Corresponding Author Email: mhfathi@gmail.com)
4- Assistant Professor, Agricultural, Medical and Industrial Research School, Karaj
Nutritive Value of Grape Pomace and Raisin Vitis Leaves Using Nylon Bags and Gas Production Techniques

M. Moghaddam1* - A. Taghizadeh2 - A. Nobakht3 - A. Ahmadi4

Received: 5-6-2011
Accepted: 25-1-2012

Abstract

The present study was carried out to determine the nutritive value of white varieties of grape pomace (GP) and raisin vitis leaves (RVL), using nylon bags and gas production techniques. Tow fistulated whether with average body weight of 45±2 kg were used. The amount of gas produced was measured at 2, 4, 6, 8, 12, 16, 24, 36, 48 and 72 h times and degradation was measured using nylon bags up to 96 h times. The degradability parameters of crude protein (CP) for soluble fractions (a) were 5.34 and 6.48% and fermentable fractions (b) were 32.87 and 15.90% for RVL and GP, respectively. The gas production of soluble and insoluble fractions (a+b) were 289.49 and 249.93 mLg⁻¹DM and the rate of gas production prices (c) were 0.01 and 0.02 (%/h) for of RVL and GP, respectively. The MP of RVL and GP were obtained 126.62 and 150.00 gkg⁻¹DM, showing a significant difference between two treatments. Correlation coefficient between dry matter degradation and gas production rates for RVL and GP were 0.9756 and 0.8691 and the ratio between crude protein degradation and the rate of gas production achieved 0.9878 and 0.9839, respectively. The high correlation between in vitro gas production and in situ methods indicate the use of lower cost gas produced in the degradation of feed stuffs.

Keywords: Gas production, Grap pomace, In situ, Metabolizable protein, Raisin vitis leaves
Phylogenetic and Genetic Analysis of D-loop and Cyt-b Region of mtDNA Sequence in Iranian Sistani, Sarabi and Brown Swiss Cows

R. Valizadeh¹ - M. R. Nassiry²* - B. Sadeghi³ - S. Ghovvati⁴ - A. Javadmanesh⁵

Received: 12-12-2010
Accepted: 10-8-2011

Abstract

Cattle have an important role in primary human civilization, so molecular studies for more accurate recognition of their origin are effective to identify unknown historical aspects. Cattle can be divided into 2 main groups including Bos Taurus and Bos Indicus. Both types of cattle can be found in Iran; therefore study of their origin has particular importance. The aim of this study was to investigate the nucleotide sequences of Cytochrome-b (Cyt-b) and HVR1&2 loci of D-loop gene region in mitochondrial DNA of Sistani, Sarabi and Brown Swiss breeds of cattle. Twenty blood samples of each breed, from non-relative individuals were obtained from blood bank of animal science department of Faculty of Agriculture, Ferdowsi University of Mashhad. The DNA content of sample was extracted based on the guanidinium thiocyanate-silicagel method. Polymerase Chain Reaction with specific designed primers was performed to amplify Cyt-b and HVR 1&2 loci with 751 and 701 bp lengths, respectively. Sequencing of amplified Cyt-b and HVR 1&2 loci were done based on Sanger method by automatic sequencer machine (ABI 3130). Nucleotide diversity in Brown Swiss, Sarabi and Sistani breeds were estimated 0.0037, 0.0024 and 0.0029, respectively. Sequences of Cyt-b and HVR 1&2 were register in National Center for Biotechnology Institute due to nucleotide differences. Results of phylogenetic test using UPGMA for both loci showed that Sarabi and Sistani breeds are belonging to first group and Brown Swiss breed to other group.

Keywords: Mitochondrial DNA, Native Cattle, Cytochrome-b, D-loop, HVR 1&2

¹,³,⁴- Professor and PhD Students, Department of Animal Science, Faculty of Agriculture, Ferdowsi University of Mashhad, Respectively
²- Associate Professor of Animal Science Department, Faculty of Agriculture, Ferdowsi University of Mashhad and Faculty member of Institute of Biotechnology, Ferdowsi University of Mashhad
(*- Corresponding Author Email: Nassiryn@um.ac.ir)
⁵- PhD Student of Animal Breeding and Genetics, 3Dipline of Animal Science, School of Agriculture, Food and Wine, Faculty of Science, University of Adelaide-SA5000-Australia
Investigation of Inbreeding in Baluchi sheep of Abbasabad Breeding Station

M. Sheikhlou1* - M. Tahmoorespur2- A.A. Aslaminejad3
Received:12-12-2010
Accepted:14-12-2011

Abstract

In this study 21721 pedigree records of Iranian Baluchi sheep registered during 30 years (1979 to 2008) at Abbasabad breeding station were used to estimate pedigree completeness level, inbreeding and average relationship coefficients of animals. During the studied years pedigree completeness level has a positive trend with the most recent cohort of lambs born in 2008 having pedigrees with 6.2 equivalent generations of known ancestors. Also, average inbreeding coefficient increased in these years and linear regression of inbreeding on year of birth resulted in an estimated rate of inbreeding of 0.15 %/yr. Inbreeding of number 2 flock was higher than that was in number one (P<0.001). Average coefficient of inbreeding in active animals was 1.95%. The average coefficients of relationship between active animals were computed to predict the future level of the inbreeding coefficient. The average coefficients of relationship between rams, between ewes and between rams and ewes in live breeding animals were 4.12, 2.50, and 2.44% respectively. Considering the scatter plot of average relationship coefficients of a new born ram to active animals of the same flock and different flock, two flocks have become closely related populations, and calculation of the average relationship coefficients of rams with animals of each flock is necessary to make a decision about exchange of rams between flocks.

Keywords: Sheep, Inbreeding, Relationship coefficient, Pedigree completeness level

1,2,3- PhD Student, Associate Professor and Assistant Professor, Department of Animal Science, College of Agriculture, Ferdowsi University of Mashhad, Respectively
(*-Corresponding Author Email: M.sheikhlou@yahoo.com)
Genetic and Phenotypic Trends for Somatic Cell Score and Determination of Effective Environmental Factors on this Trait in Iranian Holstein Cows

H. Faraji Arough\textsuperscript{1}\textsuperscript{-}, A.A. Aslaminejad\textsuperscript{2}\textsuperscript{-}, M. Rokouei\textsuperscript{3}

Received: 13-3-2011
Accepted: 3-1-2012

Abstract

The aim of this study was to estimate the genetic and phenotypic trends of Somatic Cell Score in Iranian Holstein cows. Also, the environmental factors affecting this trait are investigated. A total of 375351 test day records of somatic cells take from 54374 animals between year 2002 and 2007 were used in this study. The breeding values were estimated by fitting animal model in ASREML software. Genetic and phenotypic trends were estimated by regression of phenotype and breeding value means on year of calving. SAS software was used for estimation of genetic, phenotypic trends and effect of environmental factors. The heritability, genetic and phenotypic trends for Somatic Cell Score were 0.082 ± 0.009, 0.013 ± 0.002 and -0.224 ± 0.103, respectively. The genetic trend was significant and different from zero but phenotypic trends were not significant. Effects of herd, year, interactions between herd and year, herd and season, year and season of calving were also significant however the effects of season of calving were not.

Keywords: Genetic and phenotypic trend, Environmental factors, Somatic Cell Score

\textsuperscript{1,2} PhD Student and Assistant Professor, Department of Animal Science, College of Agriculture, Ferdowsi University of Mashhad
\textsuperscript{(*) Corresponding Author Email: hadifaraji.um@gmail.com}
\textsuperscript{3} Assistant Professor, Department of Animal Science, College of Agriculture, University of Zabol