



Microsatellite mapping of quantitative trait loci associated with carcass traits on chromosome 1 in Japanese quail

Hasan Moradian^{1}, Ali Esmailizadeh², Mohammadreza Mohammadabadi²*

1. Graduate M.Sc., Department of Animal Science, Faculty of Agriculture, Shahid Bahonar University of Kerman, Iran
2. Associate Professor, Department of Animal Science, Faculty of Agriculture, Shahid Bahonar University of Kerman, Iran

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Abstract

The purpose of this study was to identify genomic regions of quantitative trait loci (QTL), affecting carcass traits on chromosome 1 in an F₂ population of Japanese quail. For this purpose, a three-generation resource population was developed by using two distinct Japanese quail strains, wild (meat type) and white (layer type). Eight pairs of white and wild birds were crossed reciprocally and 34 F₁ birds were produced. The F₁ birds were intercrossed to generate 422 F₂ offspring. Phenotypic data including weight of carcass parts were collected on F₂ birds. All of the animals from three generations (472 birds) were genotyped for eight microsatellite markers on chromosome 1. QTL analysis was performed with least squares interval mapping method fitting three various statistical models. Significant QTL were identified for breast weight, carcass weight, head weight and percentage of breast. There was also evidence for imprinted QTL affecting breast weight, a carcass part of high economic value, on chromosome 1. The proportion of the F₂ phenotypic variation explained by the significant additive, dominance and imprinted QTL effects ranged from 1.8 to 2.3, 1.2 to 3.3 and 0.5 to 2.2 percent, respectively.

Keywords: carcass traits, F₂ design, Japanese quail, microsatellite markers, QTL mapping.



Polymorphism of exon 2 of bone morphogenetic protein 15 gene (BMP15) and its relationship with litter size in Najdi goat

Elham Javdan^{1}, Jamal Fayazi², Saleh Tabatabaei³, Mohammadtaghi Baigi Nasiri³*

1. Graduated M.Sc., Department of Animal Science, Faculty of Agriculture, Ramin University of Agriculture and Natural Resources (Khuzestan), Mulasany, Iran
2. Assistant Professor, Department of Animal Science, Faculty of Agriculture, Ramin University of Agriculture and Natural Resources Ramin (Khuzestan), Mulasany, Iran
3. Associate Professor, Department of Animal Science, Faculty of Agriculture, Ramin University of Agriculture and Natural Resources (Khuzestan), Mulasany, Iran

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Abstract

This study was conducted to detect polymorphism of gene BMP15, a member of Transforming Growth Factor β (TGF β) family which has a crucial role in controlling the ovarian follicles development, ovulation rate and fertility. Samples were randomly selected from 91 Najdi goats in 3 geographical locations, northwest, southeast and center of Khuzestan province. After DNA extraction, amplification of 235 bp fragment of exon 2 of BMP15 gene was performed using specific primers. Sequence detection was executed after amplification of gene fragments. The association of BMP15 gene and litter size was done by SAS software. Results from sequencing were analyzed by Vector NTI software. The results identified three mutations in bases 529 (T to G), 530 (C to G) and 576 (T to C). The largest litter size belongs to AA pattern. Point mutations in this gene will alter the Ovulation rate of the goat. Therefore, improving twinning trait in Najdi population can be expected by marker assisted selection.

Keywords: BMP15 Gene, Najdi Goat, ovulation rate, sequencing.



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The effect of different zinc sources on performance, blood mineral and cell counts of Zandi lambs

Mokhtar Malaki¹, Mohammadali Norouzian^{2}, Aliakbar Khadem³*

1. MSc., Department of Animal and Poultry Science, College of Abouraihan, University of Tehran, Pakdasht, Iran
2. Assistant Professor, Department of Animal and Poultry Science, College of Abouraihan, University of Tehran, Pakdasht, Iran
3. Associate Professor, Department of animal and Poultry Science, College of Abouraihan, University of Tehran, Pakdasht, Iran

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Abstract

This research was conducted to evaluate the effect of different zinc (Zn) sources on performance, blood mineral and cell counts of Zandi lambs. 18 male lambs at weaning were supplemented with two different sources of zinc, 25 ppm ZnSO₄ and 25 ppm zinc-peptide added to the basal diet as control. Live body weight, weight gain and feed efficiency improved with Zn-peptide supplementation (P<0.05). Sera Zn concentration was higher and copper and iron concentration was lower in zinc supplemented groups (P<0.05). Supplementation of zinc had no effect on blood cell counts except for white blood cells that decreased with zinc peptide supplementation (P<0.05). It was concluded that adding 25 ppm zinc peptide to fattening lamb diet improved performance and cause to higher level of blood zinc.

Keywords: bioavailability, blood cells, feed intake, finishing lamb, organic source.



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Effect of lecithin and bile salt on performances, digestibility and morphology of broiler chickens

Fereshteh Jamili¹, Farid Shariatmadari^{2}, Mohammad-amir Karimi Torshizi³*

1. Msc, Department of Poultry Science, Agricultural Collage, Tarbiat Modares University, Iran
2. Professor, Department of Poultry Science, Agricultural Collage, Tarbiat Modares University, Iran
3. Assistant professor, Department of Poultry Science, Agricultural Collage, Tarbiat Modares University, Iran

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Abstract

This experiment was conducted to evaluate the effect of emulsifiers such as lecithin and bile salts on broilers performances fed diet containing vegetable fats. 192 male Ross broiler chickens were randomly allocated in a factorial experiment design of 3×2 , consisting two sources of fat (four percent fatty acids or soy bean oil) and three emulsifiers (none, one percent lecithin and 0.05 percent bile salts) in completely randomized design with four replicates and eight birds per each. Total weight gain and feed conversion ratio was not affected by fat sources while soya oil addition to diets increased feed intake ($P < 0.05$). Emulsifiers' addition to diet improved weight gain feed conversion ratio ($P < 0.05$). The length and width of villi in jejunum, and crypt depths in duodenum were not affected by fat sources, while, crypt depth in jejunum and width of villi in ileum of birds fed on diets containing fatty acid were higher than other birds ($P < 0.05$). Addition of emulsifiers to diets increased dietary metabolisable energy ($P < 0.05$). In conclusion, addition lecithin or bile salts to diets containing soybean oil or its fatty acids, improved body weight gain and feed conversion ratio in broiler chicks by increasing in absorption area of intestine and dietary metabolisable energy.

Keywords: bile salt, broiler chicken, fat, intestinal morphology, lecithin, performance.



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Effect of different levels of silymarin on performance, carcass characteristics and antioxidant status in broiler chickens

Rohollah Ebrahimi^{1}, Tahereh Mohammadabadi², Mohsen Sari², Somayeh Sallari², Mohammadjavad Zamiri³, Mohammadtaghi Beigi Nassiri⁴*

1. Ph.D. Candidate, College of Animal Science and Food Technology, Ramin Agriculture and Natural Resources University, Khuzestan, Iran
2. Assistant Professors, College of Animal Science and Food Technology, Ramin Agriculture and Natural Resources University, Khuzestan, Iran
3. Professor, Animal Reproduction, Animal Science Department, College of Agriculture, Shiraz University, Shiraz, Iran
4. Professor, College of Animal Science and Food Technology, Ramin Agriculture and Natural Resources University, Khuzestan, Iran

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Abstract

In order to investigate the effect of different levels of silymarin (0, 100 and 200 mg/kg diet) on performance, carcass characteristics, blood parameters and antioxidant status, 120 day-old chicks were assigned to 3 treatments with four replicates and 10 birds in each in a completely randomized design. Results showed supplementation of 200 mg silymarin significantly decreased the body weight gain (BWG) in starter ($P<0.05$) and whole period of experiment ($P<0.01$) and significantly increased feed conversion ratio at starter ($P<0.05$), grower ($P<0.05$) and total rearing periods ($P<0.01$). Also, addition of 100 mg silymarin significantly increased the carcass relative weight ($P<0.01$) and supplementation of 200 mg silymarin significantly increased the breast relative weight ($P<0.05$). Furthermore, 200 mg silymarin significantly increased the malondialdehyde and heterophil/ lymphocyte ratio and significantly decreased superoxide dismutase ($P<0.05$). These results showed that supplementation of silymarin in diet under normal condition, improved the carcass and breast relative weight, but no had effect on bird's oxidative status.

Keywords: antioxidant status, broiler chicken, carcass characteristics, performance, silymarin.



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Effects of using thyme (*Thymus vulgaris* L.) and enzyme (Kemine) on performance and blood biochemical parameters of laying Japanese Quails

Sohrab Azarfar¹, Ali Nobakht^{2}, Yousef Mehmannaaz²*

1. MSc, Department of Animal Science, Islamic Azad University, Maragheh Branch, Iran

2. Assistant Professor, Department of Animal Science, Islamic Azad University, Maragheh Branch, Iran

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Abstract

This experiment was conducted to investigate the effects of using different levels of thyme (*Thymus vulgaris* L.) medicinal plant and multi enzyme (Kemine) on performance and blood biochemical parameters of Japanese quails with 240 laying bird (6 up to 12 weeks) as a 2*2 factorial include two levels of thyme (0 and 0.75 percent) and 2 levels of Kemine enzyme (0 and 0.05 percent) in four treatments, 4 replicates and 15 laying quails in each replicate in a completely randomized design. Interaction between thyme and enzyme did not have any significant effects on egg production performance. Whereas egg weight in birds who consume thyme, was high ($P < 0.05$) and amounts of blood uric acid and eggshell thickness in birds who received enzyme and thyme in diets, increased ($P < 0.05$). The overall results indicated that using enzyme and thyme in Japanese quails diets can be have positive effects on egg weight and eggshell thickness.

Keywords: blood metabolites, Kemine enzyme, laying quails, performance, thyme.