World Academy of Science, Engineering and Technology
International Journal of Animal and Veterinary Sciences
Vol:9, No:06, 2015

Fatty Acid Binding Protein 3 Gene Polymorphisms and Their Associations with Growth Traits and Blood Parameters in Two Iranian Sheep Breeds

Authors : Sahar Javadi-Novashnagh, Mohammad Moradi-Shahrbabak, Mostafa Sadeghi, Katarzyna Ropka-Molik, Hossein Moradi-Shahrbabak, Maria Consuelo Mura

Abstract : The objective of this study was to investigate two single nucleotide polymorphisms located in exon 2 (g.939A > G) and intron 3 (g.4349A > G) of fatty acid binding protein 3 (FABP3) gene in two Iranian sheep breeds, Lori-Bakhtiari and Zel, using polymerase chain reaction -restriction fragment length polymorphism (PCR-RFLP) approach. The association of the polymorphisms with growth traits and blood parameters was also examined. Results revealed a g.939A > G SNP (single nucleotide polymorphism) in the exon 2 exhibiting three genotypes: AA, AG, and GG. Statistical analysis indicated that this polymorphism significantly influenced blood triglyceride ($P < 0.05$) and cholesterol ($P < 0.08$) levels as well as weaning weight ($P < 0.05$). Animals with AG genotype had the highest blood triglyceride level and weaning weight while the highest amount of blood cholesterol was observed in animals with GG genotype. On the other hand, no significant effect was observed on birth and fat-tail weight traits. The intron 3 (g.4349A > G) was monomorphic across the studied samples. Lori-Bakhtiari breed showed significantly higher blood triglyceride and cholesterol levels, as also birth and weaning weight compared to Zel breed ($P < 0.01$). Considering that the literature is bereft of any report on the association study between FABP3 SNPs and sheep growth traits and blood parameters, our findings suggest that the investigated polymorphism might be one of the main genetic factors affecting growth and physiological traits in sheep.

Keywords : FABP3 gene, fatness, weaning weight, blood triglyceride, cholesterol, Zel, Lori-Bakhtiari
Conference Title : ICASVM 2015 : International Conference on Animal Science and Veterinary Medicine
Conference Location : New York, United States
Conference Dates : June 04-05, 2015