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POSTER PRESENTATION

The bovine *MYOD1* p.Gly190Ser polymorphism (rs110708239) and its association with carcass traits in East Anatolian Red cattle and Holstein x Turkish native breeds

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Abstract

The genes responsible for myogenic differentiation (MYOD) encode transcription factors specific to skeletal muscle development, and they are critical candidates for beef production. The collective understanding of the impacts of the *MYOD1* gene on carcass traits remains relatively restricted within native Turkish cattle breeds. Therefore, we evaluated the effects of p.Gly190Ser (c.568G>A) polymorphism in *MYOD1* gene on carcass traits in East Anatolian Red cattle and HolsteinxTurkish native breeds. The genotyping of the SNP within exon 1 of the gene was conducted through the PCR-RFLP technique. Population genetic parameters, encompassing adherence to Hardy–Weinberg equilibrium, heterozygosity, number of effective alleles, and polymorphism information content were computed. We employed information encompassing live weight, hot and chilled carcass weight, dressing percentage, chilling loss, back fat thickness, bone content, and valuable cuts yield. We conducted assessments for both the entire population and within each specific breed. The statistical analysis was performed utilizing the general linear model procedure employing the least squares methodology. The findings demonstrated a dominant prevalence of the BB genotype (~60%), resulting in a remarkably high frequency of the B allele (0.68). The $\chi 2$ test underscored a significant deviation from Hardy–Weinberg equilibrium for the respective locus ($P<0.001$). The ANOVA outcomes indicated that *MYOD1* rs110708239 marker does not serve as a robust marker within the examined breeds. We noted a significant association with dressing percentage exclusively within East Anatolian Red cattle ($P<0.05$). No significant alterations linked to genotype were observed in any of the other phenotypic measurements. This investigation centered on the variability exhibited by the bovine *MYOD1* p.Gly190Ser marker, as well as the potential relationships between the resultant genotypes and carcass characteristics. Although a possible association was identified with dressing percentage, the subsequent association analysis indicated that this marker did not exhibit significant genetic strength within the analyzed Turkish native breeds.

Keywords: East Anatolian Red breed, *MYOD1*, carcass characteristics, SNP

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