

Polymorphisms of Calpastatin Gene and Its Association with Growth Traits in Indonesian Thin Tail Sheep

Authors : Muhammad Ihsan Andi Dagong, Cece Sumantri, Ronny Rachman Noor, Rachmat Herman, Mohamad Yamin

Abstract : Calpastatin involved in various physiological processes in the body such as the protein turnover, growth, fusion and mioblast migration. Thus, allegedly Calpastatin gene diversity (CAST) have an association with growth and potential use as candidate genes for growth trait. This study aims to identify the association between the genetic diversity of CAST gene with some growth properties such as body dimation (morphometric), body weight and daily weight gain in sheep. A total of 157 heads of Thin Tail Sheep (TTS) reared intensively for fattening purposes in the uniform environmental conditions. Overall sheep used were male, and maintained for 3 months. The parameters of growth properties were measured among others: body weight gain (ADG) (g/head / day), body weight (kg), body length (cm), chest circumference (cm), height (cm). All the sheep were genotyped by using PCR-SSCP (single strand conformational polymorphism) methods. CAST gene in locus fragment intron 5 - exon 6 were amplified with a predicted length of about 254 bp PCR products. Then the sheep were stratified based on their CAST genotypes. The result of this research showed that no association were found between the CAST gene variations with morphometric body weight, but there was a significant association with daily body weight gain (ADG) in sheep observed. CAST-23 and CAST-33 genotypes has higher average daily gain than other genotypes. CAST-23 and CAST-33 genotypes that carrying the CAST-2 and CAST-3 alleles potential to be used in the selection of the nature of the growth trait of the TTS sheep.

Keywords : body weight, calpastatin, genotype, growth trait, thin tail sheep

Conference Title : ICABBBE 2016 : International Conference on Agricultural, Biotechnology, Biological and Biosystems Engineering

Conference Location : Amsterdam, Netherlands

Conference Dates : May 12-13, 2016