THE INFLUENCE OF GOAT MILK PROTEIN GENE POLYMORPHISM TO MILK TRAITS

Lina Baltrėnaitė[1], Kristina Liucvaikienė[1], Natalja Makštutienė[1], Kristina Morkūnienė[1],
Loreta Šalomskienė[1], Ilona Miceikienė[1], Rolandas Stankevičius[2], Sigita Kerzienė[3]
[1]*Institute of Biology Systems and Genetics, Veterinary Academy, Lithuanian University of Health Sciences*
[2]*Animal Nutrition Department, Veterinary Academy, Lithuanian University of Health Sciences*
[3]*Department of Physics, Mathematics and Biophysics, Lithuanian University of Health Sciences*
Tilžės 18, Kaunas, LT-47181; Phone: +370 37 363 664; E-mail: genetikalab@lva.lt

Abstract. The aim of the present study was to investigate the influence of poliymorphic sites of Alfa S1-casein, Alfa S2-casein, Kappa-casein and Beta-lactoglobulin genes on goat milk yield and milk composition. The investigation was performed in a group of 133 goats belonging to the Lithuanian native, Saanen and Czech White breeds. The DNA was extracted from the hair roots. Alfa S1-casein gene polymorphism was investigated by AS-PCR method, whereas polymorphism of Alfa S2-casein, Kappa-casein and Beta-lactoglobulin genes was investigated by PCR-RFLP method. The investigation of the influence of genetic and non-genetic factors on milk traits in goats showed a statistically significant influence of Alfa S2-casein on all milk traits. It influenced 6.7 % of milk yield diversity, 8 % of milk fat quantity and 9.5 % of protein quantity diversity. Kappa-casein influenced 4,2 % ($P<0.01$) % of milk yield diversity whereas Beta-lactoglobulin gene influenced 4.8 % ($P<0.05$) of protein quantity diversity.

Keywords: polymorphism, Alfa S1-casein gene, Alfa S2-casein gene, Kapa-casein gene, Beta-lactoglobulin gene, goat, milk production.