

CHANGES IN THE PROPORTION OF PROTEINS FRACTIONS DEPENDING ON LACTOFERRIN POLYMORPHISM GENE AND THE SOMATIC CELLS COUNT IN THE MILK OF POLISH HOLSTEIN-FRISIAN AND POLISH RED-WHITE CATTLE

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Abstract. In dairy cattle, lactoferrin plays an important role in the control of mammary gland health, protecting it from mastitis, the most costly disease in milk production. The aim of the study was to analyze the relationship between genetic polymorphism of lactoferrin and somatic cells count and the proportion of certain milk protein fractions (serum albumin, α -casein, β -casein, κ -casein, α -lactalbumin). The research material was milk samples collected from cows of two breeds: Polish Holstein-Frisian (PHF) and Polish Red-White (PRW). Basic composition, proportion of protein fractions, lactoferrin concentration and genetic polymorphism of lactoferrin were determined in milk. Two genotypes of lactoferrin gene were found: AA and AB. In milk from PRW cows, a significantly ($P \leq 0.01$; $P \leq 0.05$) higher level of α -casein and lower level of β -casein was shown. The serum albumin level was higher in the milk from PHF cows with AB genotype. The milk from PRW cows with AA genotype was characterized by a higher level of α -lactalbumin. In milk from PHF cows an analogous relation was not observed. The concentration of lactoferrin in milk from cows with AA genotype was higher. The level of serum albumin, α -casein and β -casein was higher in milk from cows with SCC lower than 400 000 per ml, independently to the breed and to the genotype. This study showed that the polymorphism of lactoferrin gene does not affect fat level and composition of protein fractions in milk as expected. It was showed that SCC affects more the fat level and composition of protein fractions than the polymorphism of lactoferrin gene or the breed (PRW or PHF).

Keywords: bovine, milk, lactoferrin, polymorphism, SCC, protein fractions.

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