

## IMPACT OF MAMMARY GLAND INFECTIVE STATUS ON THE CONCENTRATION OF LACTOFERRIN IN COW'S MILK

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### Abstract

Lactoferrin (LF) is glycoprotein, which is normally excreted in cow's milk, but as a result of inflammatory processes in the mammary gland, its concentration is being increased. The aim of this research was to determinate whether the LF concentration in milk is influenced by increased number of milk somatic cell count.

In this research we used milk from (n = 345) Holstein-Friesian cows in Pelagonia region, or more precisely milk from healthy (n = 112) and infected quarters (n = 233). A quarter was classified as healthy when no visible signs of mastitis were detected or the California Mastitis Test (CMT) was negative. A quarter was classified as subclinical when no visible signs of mastitis were detected but CMT was positive. A quarter was classified as clinical mastitis when there were visible signs of mastitis (cow, udder or milk appearance). The milk samples were analysed instrumentally for physico-chemical properties (Lactoscope C4+), somatic cell count (SCC) by Bentley Somacount CC 150, total number of bacteria (CFU) (by Bentley Bactocount IBC), and by ELISA for concentrations of lactoferrin. We used SPSS 15.0 for analysis of gained data.

Significant differences were detected in concentrations of lactoferrin in healthy quarters (915.94 µg/mL) and in quarters with sub-clinical (2,095.87 µg/mL) and clinical mastitis (3,528.99 µg/mL) (p < 0.001). A correlation between lactoferrin and lactose (r = -0.21, p < 0.01), lactoferrin and CFU (r = 0.28, p < 0.01) as well as between lactoferrin and somatic cells (r = 0.32, p < 0.01) was observed.

These results initiate that lactoferrin could be used as complementary test to somatic cell count, and potential to be a primary diagnostic test for sub-clinical and clinical mastitis in dairy cows. Furthermore, it could be used as natural antibiotic in treatment of mastitis in dairy cows, in order to decrease the presence of antibiotic residuals in milk, thereby to improve hygiene of raw milk.

**Key words:** Lactoferrin, Cow's milk, Somatic cells, Mastitis.