



BOOK OF ABSTRACTS



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THE IMPACT OF MASTITIS PATHOGENS ON ANTIOXIDANT ENZYMES ACTIVITY IN COWS MILK

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SUMMARY

Early postpartum is the period when cows experience a significant increase in physiological stress levels followed by increased susceptibility to mastitis. The aim of this study was to establish a correlation between mastitis pathogens and the activity of superoxide dismutase (SOD) and glutathione peroxidase (GPX) in milk collected from cows with mastitis in comparison with their healthy counterparts. The two years prospective study was carried out to assess the udder health status and changes in the activity of antioxidant enzymes SOD and GPX in milk in the period to the 42nd day of lactation. The quarter milk samples were screened for detection of abnormal milk secretion (AMS) and intramammary infections (IMI). The enzyme activity was determined in milk serum using spectrophotometric methods. The average test day milk yield of the dairy cows included in the survey ranged from 28.15±0.485 to 28.79±0.472 kg. The prevalence of IMI's from AMS was 43.83% and the isolated mastitis pathogens were grouped as contagious: *Streptococcus agalactiae* (19.14%) and *Staphylococcus aureus* (6.17%); or environmental: *Enterococcus spp.* (8.02%), *Pseudomonas aeruginosa* (7.41%), *Escherichia coli* (1.85%) and *Aspergillus niger* (1.23%). IMI showed a statistically significant influence on SOD and GPX activity in milk serum ($p<0.05$). Contagious bacteria lead to increased activity of GPX, while environmental pathogens more drastically increase SOD activity. The SOD and GPX activity in milk can be used as a predictive biomarker for IMI in the period of early lactation.

Keywords: glutathione peroxidase, superoxide dismutase, mastitis.