CORRELATION BETWEEN ELECTRICAL CONDUCTIVITY AND SOMATIC CELL SCORE FOR MASTITIS EVALUATION IN DAIRY GIR CATTLE

CORRELAÇÃO ENTRE CONDUTIVIDADE ELÉTRICA E ESCORE DE CÉLULAS SOMÁTICAS PARA AVALIAÇÃO DA MASTITE EM BOVINOS LEITEIROS DA RAÇA GIR

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Mastitis is an inflammation of the mammary gland, caused by bacteria, viruses, fungi and yeasts. During the processes of inflammation, chloride (Cl) and sodium (Na) ions, immunoglobulins and other serum proteins present in blood, flow through capillaries direct to the alveoli lumen of the gland, thus increasing its concentration. This is due to the increase of vascular permeability, the destruction of tight junctions and the active ion-pumping system, while the concentration of casein, lactose, triglycerides and potassium (K) decreases. This work aimed to study a method to evaluate mastitis in Gir dairy cattle, where the milk electric conductivity (EC) was correlated to milk somatic cell count (SCC). This method will provide an early diagnosis, which can be used daily with conductivity meter in mechanical milking machine or weekly in properties with manual milking. The measurement of EC in milk was accomplished through the appliance of AK83 BENCHTOP PORTATIL. The experiment was conducted in two farms: Calciolândia, Arcos/MG and Bom Jardim da Serra, Mococa/SP, totaling 123 Gir cows. In Calciolândia farm, milking was manual and in Bom Jardim da Serra milking was manual and mechanical but both with the presence of the calf . The milk collection took place in 10 ml bottles at ambience temperature, and the samples were in duplicate, one to measure the EC and the other for SCC and components. The correlations were calculated using SAS software, through data collected from farms. The correlations found between EC and SCC were 40.9% and 42.7%, respectively to Bom Jardim da Serra and Calciolândia farms. Environmental factors that influences SCC and EC where not considered in the analysis, order of birth, lactation stage, age of cow, number of milk per day and jet of milk collected sample of complete collection of first milking or jets of milk. For now we can conclude that there is strong evidence of an analogy between electrical current (EC) and the milk somatic cell count (SCC), where the EC increases during inflammation and SCC, but one is the amount of other ions and by increased presence of cells in milk. This method can replace the SCC, reducing the cost of laboratory tests with a quick, efficient and inexpensive measurement.

Keywords: mastitis, somatic cell score, electrical conductivity, Gir.