

Title: SANITARY ASPECTS OF THE MILK PRODUCTION LINE AND MICROBIOLOGICAL PROFILE OF MASTITIS IN SOUTH FLUMINENSE REGION

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Abstract:

Brazil is the fourth largest milk producer in the world, presenting a growth rate near to 5% annually. In addition, milk is considered one of the most complete food existing. So adoption of a quality control in its production is essential to fulfill the requirements of consumers and ensure the noble characteristics of this product. However, Brazilian milk still has lower quality comparing to other producer countries. Also it does not meet the majority of the Instruction 62, mainly due to the high rate of mastitis, the most important disease in dairy farming. Mastitis represents significant economic losses and potential damage to public health. This study aimed to identify the hygienic procedures during milking and the etiology of mastitis in 9 farms of the South Region of Rio de Janeiro to implement control and prevention best practices. In each property a checklist considering important features of milk production quality was applied. Also, black background mug test and CMT (California Mastitis Test) were performed. Milk samples from positive cows were collected for isolation and identification (Winn et al, 2008). Susceptibility assays were performed following CLSI (2013). Just one property presented satisfactory results with a mastitis prevalence of 8% and a positive outcome of the checklist in 94% (16/17) of the questions. The other farms showed an average mastitis prevalence of 59% similar to the percentual of positive responses to the checklist. A total of 429 isolates was obtained, being *Staphylococcus aureus aureus* the prevalent one with a 38.23% rate (164/429). It was followed by coagulase-negative *Staphylococcus* 34.50% (148/429), *Streptococcus* spp. 13.05% (56/429), Enterobacteriaceae 9.79% (42/429) and other coagulase positive *Staphylococcus* 4.43% (19/429). Phenotypic assays for the evaluation of antimicrobial resistance evidenced that *S. aureus* and other *Staphylococcus* spp showed high resistance to penicillin (94%; 73%), ampicillin (87%; 66%), erythromycin (48%; 44%) and neomycin (30%; 22%), respectively. Otherwise, cephalexin, ceftiofur and sulfamethoxazole + trimethoprim presented a lower resistance of 13%. The correct management in dairy herds is essential for the control and prevention of mastitis and as a consequence of high quality milk however it is often underestimated. The lack of management is related to the high prevalence of contagious mastitis mainly caused by *S. aureus* during milking. The observed resistance can be related to the usual practice of empirical use of antimicrobial in an attempt to control the infectious diseases in the herd.

Keywords: milking management, bovine mastitis, mastitis etiology

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