

MILK MICROBIOLOGICAL PROFILE OF FOUR DAIRY FARMS FROM SÃO PAULO STATE, BRAZIL ¹

PERFIL MICROBIOLÓGICO DO LEITE DE QUATRO PROPRIEDADES DO ESTADO DE SÃO PAULO, BRASIL

ADNA C. R. MONÇÃO²; JULIANA R. P. ARCARO²; THIAGO P. MOTTA²; LÍVIA CASTELANI; THAMIRES MARTINS²; ADRIANA FRIZZARIN²; HELOISA DE AZEVEDO; CLÁUDIA R. POZZI².

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²Post graduation student (MS) in “Produção Animal Sustentável”, Instituto de Zootecnia (IZ), Agência Paulista de Tecnologia dos Agronegócios (APTA), Rua Heitor Penteado, 56, Centro, CEP 13460-000, Nova Odessa, SP, Brazil. E-mail: adna.crisleia@gmail.com.

The concern in milk quality, milk production, and in animals' welfare is in constant increase. Mastitis is recognized as the main disease affecting dairy animals because of changing in milk composition and reduction in milk production. In Brazil, the highest incidence of mastitis is related to infectious agents. This study aimed to investigate the incidence of pathogenic microorganisms in milk produced by 60 cows from four dairy farms (15 cows/farm) located at Sao Paulo state, Brazil. Milk samples from each teat were collected fortnight in sterile tubes, previously identified, during two months. In each herd 240 samples were obtained, except on the farm A, where an extra collection was done, in a total amount of 300 samples. On the farm A, the sampling was done in a period of transition between the dry and rainy season. On the farm B, samples were collected mostly in the season of high temperatures. On the farm C the collections were made over a period of heat and humidity. On the farm D, on a period of warmer temperatures and reduced rainfall. The isolation and identification of microorganisms were conducted at Laboratory of Milk Quality from Instituto de Zootecnia, Nova Odessa, São Paulo, Brazil. Aliquots of 100 mL of milk were grown on plates with 5% sheep blood agar. After incubation, they were used for the production of catalase and Gram stain. Gram positive and catalase positive samples were classified as *Corynebacterium* spp. (*Coryne.*). Gram positive cocci and catalase negative samples were classified as *Streptococcus* spp. (*Strepto.*). Milk were then proceeded to coagulase test in rabbit plasma. Gram-positive cocci, catalase positive and coagulase-negative were classified as *Staphylococcus* coagulase-negative (SCN). Gram positive, catalase positive and coagulase positive samples were subsequently subjected to biochemical tests: mannitol salt agar, maltose, trehalose, and acetoin production. Strains that were positive for these tests were classified as *Staphylococcus aureus*. Farms B and C had the lowest rates of infection. In contrast, on the farm D the worst results were detected, having high rates of infection, being followed by farm A. The adequacy of practices aiming the hygienic milking is paramount, especially mechanisms to control infectious microorganisms. This will prevent mastitis and contribute for a sustainable production system in order to ensure greater milk quality and animals' health and welfare.

Table 1 - Absolute (AF) and relative frequency (RF) of microorganisms isolated from milk on farms A, B, C and D.

| Farm | Pathogens | | | | | | | | Total AF (RF) |
|------|----------------|----------------|-----------------------------|----------------------------|---------------------------|---------------------|-----------------------|------------|------------------|
| | SCN AF (RF) | SCP AF (RF) | <i>S. aureus</i> AF (RF) | <i>Strepto.</i> AF (RF) | <i>Coryne.</i> AF (RF) | Cocci G- AF (RF) | Bacilli G- AF (RF) | | |
| A | 25 (35.2) | 12 (16.9) | 5 (7.04) | 24 (33.8) | 3 (4.22) | 0 | 2 (2.81) | 71 (100%) | |
| B | 5 (14.28) | 11(31.42) | 0 | 14 (40) | 4 (11.42) | 0 | 1 (2.85) | 35 (100%) | |
| C | 7 (18.91) | 13(35.13) | 6 (16.21) | 8 (21.62) | 2 (5.4) | 0 | 1 (2.7) | 37 (100%) | |
| D | 5 (4.95) | 9 (8.91) | 51 (50.49) | 25(24.7) | 8 (7.92) | 3 (2.97) | 0 | 101 (100%) | |

Key words: mastitis, dairy cattle, *Streptococcus*, *Staphylococcus aureus*.