

Abstract:

This study was carried out between August 2003 and March 2004. One hundred and twenty milk samples were collected from supermarkets in Khartoum State. Sixty milk samples were collected during summer and other 60 during winter from the same supermarkets. The milk samples were examined for microbial quality that include total bacterial count, spore forming bacteria count, coliform count. Enumeration, isolation and identification of *E. coli*, *S. aureus*, *Salmonella* spp. and the presence of *Brucella* as detected by milk ring test were also estimated. The criteria used for identification of the isolates were reaction to Gram's stain, morphological appearance, cultural characteristics and biochemical tests. Similarly phosphatase test was done. The present study revealed that high average total bacterial count ($5.63 \times 10^9 \pm 2.87 \times 10^9$ cfu mL⁻¹) was found for the raw milk samples. Moreover, during summer the total bacterial count of milk ($1.04 \times 10^{10} \pm 4.01 \times 10^9$ cfu mL⁻¹) was higher than during winter ($9 \times 10^8 \pm 2.51 \times 10^9$ cfu mL⁻¹). *Staphylococcus aureus* was detected in 46.7% of the milk samples with mean count of $4.9 \times 10^4 \pm 1.29 \times 10^6$ cfu mL⁻¹. During summer the mean count was $7.44 \times 10^5 \pm 1.66 \times 10^6$ cfu mL⁻¹, which was higher than the count during winter ($1.61 \times 10^5 \pm 2.3 \times 10^5$ cfu mL⁻¹). *Escherichia coli* were detected in 2.5% of the milk samples with a mean of $6.0 \times 10^5 \pm 7.94 \times 10^5$ cfu mL⁻¹ and coliforms bacteria were detected in 82.5% with a mean of $3.32 \times 10^6 \pm 1.43 \times 10^7$ cfu mL⁻¹. Also during summer the mean was $5.15 \times 10^6 \pm 2 \times 10^7$ cfu mL⁻¹, which was higher than during winter ($1.45 \times 10^6 \pm 3 \times 10^6$ cfu mL⁻¹). Spore forming bacteria were detected in 32.5% of the milk samples with a mean of $4.81 \times 10^6 \pm 1.4 \times 10^7$ cfu mL⁻¹. Also during summer the mean was $7.15 \times 10^6 \pm 1.79 \times 10^7$ cfu mL⁻¹, was higher than during winter ($1.45 \times 10^6 \pm 3 \times 10^6$ cfu mL⁻¹). There was no *Salmonella* spp. in any of the milk samples collected during the present study, while milk ring test for *Brucella* showed that 44.1% of the milk samples were positive for *Brucella*. Moreover 54.4% of which were detected during winter and 45.61% were found during summer. Also during this study 44.17% of the milk samples were positive to phosphatase test. All the milk samples (100%) were found to be negative to the presence of formalin. Conclusions and recommendations for improvement of hygienic quality of marketed milk in Khartoum State were suggested. Sanitary standards should be established in this country so as to control milk production and marketing. Further studies should be done to evaluate safe and good supply of consumed milk.