

# Bacteriology of unheated expressed breast milk stored at room temperature

## Abstract:

Thirty samples of unheated expressed breast milk (EBM) from 30 lactating mothers, and twelve samples of unboiled Kenya Co-operatives Creameries (KCC) milk, both stored at room temperature (RT) and in the refrigerator (at 4°C), were examined for the degree of bacterial contamination at 0 hour, 4 hours, 6 hours and 8 hours. All the EBM samples were contaminated at 0 hour. The mean bacterial colony counts was  $5.438 \times 10^3$  c.f.u./mm<sup>3</sup> with a range of 0.15 -  $23.1 \times 10^3$  c.f.u./mm<sup>3</sup>. Pure cultures were obtained in 12 out of 30 (40%) while 18 out of 30 (60%) had mixed growth. The majority of the bacteria found in EBM were skin flora like *Staphylococcus albus* 76.7% (23/30) and *Streptococcus viridans* 40% (12/30). Potential pathogens like *Escherichia coli*, *Streptococcus faecalis* and *Staphylococcus aureus* were found in 26% (8/30), 13.3% (4/30) and 6.7% (2/30) respectively. Three out of eight (37.5%) of the *Escherichia coli* were of faecal origin. Eleven out of the twelve KCC milk samples had bacterial contamination at 0 hour. One sample was sterile. The mean bacterial colony count was  $77.8 \times 10^3$  c.f.u./mm<sup>3</sup> with a range of 45 -  $103.5 \times 10^3$  c.f.u./mm<sup>3</sup>. *Staphylococcus albus* was isolated from 5 samples (41.7%), *Escherichia coli* from 8 (66.7%) and *Anthracoides* from 8 samples (66.7%). All the *Escherichia coli* isolated from KCC milk were of non faecal origin. The bacteria grown from each sample at 0 hour was the same bacteria isolated at 4, 6 and 8 hours. There was no significant change in bacterial colony counts in EBM on storage at RT and at +4°C for 8 hours,  $p > 0.5$  while significant rise in bacterial colony counts occurred in KCC milk stored at RT for 6 hours ( $P < 0.05$ ) and 8 hours ( $p < 0.02$ ). There was significant difference in bacterial colony counts in EBM and KCC milk both stored at RT at 0 hour ( $p < 0.01$ ), 6 hours ( $p < 0.01$ ) and 8 hours ( $p < 0.001$ ), but no significant difference in bacterial colony counts in EBM stored at RT and that stored in the refrigerator for 8 hours ( $P > 0.5$ ).