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 40C), were examined for the degree of bacterial contamination at 0 hour, 4 hours, 6 hours and 8 hours. All the EBH samples were contaminated at 0 hour. The mean bacterial colony counts was $5.438 \times 10^3$ c.f.u/mm³ with a range of 0.15 - 23.1 x 10^3 c.f.u./mm³• 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./ml with a range of 45 - 103.5 x 10³ c.f.u./mm³. Staphylococcus albus was isolated from 5 samples (41.7%), Escherichia coli from 8(66.7%) and Anthrocoids 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 +40C 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).