MICROBIOLOGICAL QUALITY OF MILK MARKETED IN GOA STATE

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ABSTRACT

The present investigation was carried out to evaluate the microbiological quality of milk supplied from neighboring states to Goa. Milk samples were randomly collected from Maharashtra (pasteurized) milk tanker, Karnataka (pasteurized) milk tanker, Srikrisna Dairy, Goa Dairy and Mahananda Dairy for microbiological study. The milk samples collected from the pasteurized milk tankers of Maharashtra milk tanker and Karnataka milk tanker showed the presence of *E. coli*, *Staphylococcus aureus* and *Faecal streptococci*. However all samples were negative for *salmonella* and *Listeria monocytogenes*.

Key words: Milk, Microbiology, *E. coli*, *Staphylococcus aureus*, *Faecal streptococci*, *salmonella* spp, *Listeria monocytogenes*.

Milk is a favorable medium for microorganisms, which can be pathogenic causing health hazards, or spoilage organisms. The growth of mesophilic and thermophilic spoilage species like *Enterococcus*, *Streptococcus*, *Lactobacillus* and *Bacillus* can be rapid under tropical climate (Ansari and Datta, 2007). Goa state depends on the neighbouring states for milk requirement.

The raw from neighbouring states, pasteurized milk is purchased through milk tanker. This large amount of supplied milk is again pasteurized, packed and marketed in Goa state. The aim of this study was to analyze the microbial quality of milk received from neighbouring states and supplied in Goa State.

In all, 125 milk samples were obtained from Maharashtra (pasteurized) milk tanker, Karnataka (pasteurized) milk tanker, Goa dairy (pasteurized packed milk), Srikrisna dairy (pasteurized packed milk) and Mahananda dairy (pasteurized packed milk). Milk samples were collected in sterile containers and transported in ice to the microbiology laboratory, Goa University, Goa. Milk samples were tested for *streptococci*, *Staphylococcus aureus*, *Salmonella* spp. and *Listeria Monocytogenes* and identified by the methods recommended by BIS (1981).

From the milk samples analyzed, 33 samples showed presence of *E. coli*, 25 The presence of *Staphylococcus aureus*, and 24 the present of *faecal streptococcus* (Table 1). *E. Coli* in Maharashtra (pasteurized) milk tanker, Karnataka (pasteurized) milk tanker, indicates faecal contamination during handling of milk our findings are corroborates with those of Plalanniswami, (1988) The detection of *staphylococcus aureus* is of public health impotence because of its ability to cause a wide range of infections especially food borne intoxication (Uzeh, *et al.* 2006). They are heat susceptible; but some
strains of S.aureus could survive heat treatment in both cows and buffalo milk (Yadav, 1991). Pasteurized milk of both Maharashtra and Karnataka these showed presence of E. Coli. Staphylococci are known to be associated with hands, nails and skin in human beings (Tambekar and Bhutada, 2006). In present investigation (25) milk samples were found contaminated with Staphylococcus aureus. However, these microorganism were resent in repasteurized samples. Our findings agree with those of Lingathurai et al. (2009), Shojaei and Yadollahi (2008), Desai and Kamat (1998), Rao, et al. (1979), Zariwala and Sharma (1978) who reported the presence of S. aureus and E. Coli in milk. The 24 milk samples showed presence of faecal streptococci which were collected from pasteurized milk tanker the milk processed at Goa dairy, Mahandanda dairy and Srikrishna dairy did not show the presence of Coliforms, Staphylococcus Streptococci, Salmonella and Listeria monocytogenes, indicates proper and adequate pasteurization.

The total count for pathogens, for the milk samples showing the highest count with the standard deviation is indicated in Table 2. From MSMT samples, highest count for E.coli was obtained for sample no. 16, whereas sample no. 12 indicated highest count of S.aureus and sample no. 10 indicated the highest count for Faecal streptococci. From KSMT samples, highest count for E.coli was obtained for sample no. 14 where as sample no. 11 indicated highest count of S.aureus and sample no. 09 indicated the highest count for Faecal streptococci.

It is concluded that pasteurized milk received from neighboring states of Goa through milk tankers showed the presence of E. Coli and S. aureus and Faecal streptococci. However milk samples collected from Goa, Mahananda and Srikrishna dairy showed negative for coliforms, staphylococcus aureus, faecal streptococci, salmonella, Listeria monocytogenes. It is therefore essential to take necessary steps in handling pasteurized milk tanker, so as to avoid pathogenic contamination during handling and transportation of milk.

### Table 1: Microbiological quality of milk (Cfu/ml).

<table>
<thead>
<tr>
<th>Type of milk</th>
<th>Number of milk samples tested</th>
<th>Number of milk samples showing presence of</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>E. Coli</td>
</tr>
<tr>
<td>MSMT</td>
<td>25</td>
<td>17</td>
</tr>
<tr>
<td>KSMT</td>
<td>25</td>
<td>16</td>
</tr>
<tr>
<td>Total samples</td>
<td>125</td>
<td>33</td>
</tr>
</tbody>
</table>

MSMT- Maharashtra State Milk Tanker  KSMT- Karnataka State Milk Tanker

### REFERENCES