Assessment of Microbiological Quality in Set Yoghurt Production Line at a Commercial Dairy Processing Plant

T.D.W. Ranasinghe', M.G.C.S. Madakumbura[2], E.D.N.S. Abeyrathne'
'Department of Animal Science, Uva Wellassa University, Badulla, Sri Lanka
[2]13elwatte Dairy Industry Limited, Buttala, Sri Lanka

A study was conducted to find out microbial contaminations, sources and preventive measures in the set yoghurt production line in Pelwatte Dairy Industry Limited (PDIL) at Buttala. Samples were collected at all the processing steps and from raw ingredients and UV splash water. Swab samples were collected from processing vats, CIP tank and permanent workers' hands. Air samples were taken from Air Condition (A/C) plant, table fans and yoghurt filling area. Quality of samples was assessed using microbiological (total colony count, *Coliform,* yeast and moulds) properties. Pasteurized yoghurt mixture samples (sorbate added mixture, culture inoculated mixture and filling mixture) were detected after an effective pasteurization process (92°C, 5 minutes). Further analysis of contamination points showed the presence of yeast and mouldin the air samples, UV splash water and swabs of the exposed processing vats such as balance tank and CIP tank. However, the enclosed processing vats such as mixing vat and filling vat were free from yeast and mould after CIP cleaning using sterilized UV splash water (100°C, 2 minutes) as final rinsing agent. Balance tank was always exposed to the outer environment during manufacturing process and culture inoculation vat was opened twice after CIP. Yeast and mould were detected in both vats. Yeast and mould were consistently detected in air samples and simultaneously the swabs of permanent workers' hands. Table fans were close to workers and filling area. Hence, it can be concluded that air obtained from A/C plant and fans was the contamination source of yeast and mould. Microbiological quality of set yoghurt can be improved by using clean and proper ventilation, minimizing the exposure of processing area to outer environment and frequent cleaning of air filters in A/C plant, while maintaining the basic manufacturing steps.

Keywords: Set yoghurt, Microbial contaminations, Sources, Air