812/D

Isolation of microorganisms associated with *Jaadi* produced in the western coastal belt of Sri Lanka

J Gooneratne*, D M W D Divisekera, S S K Madage and R K P N Indunil
Food Technology Section, Industrial Technology Institute, 363, Bauddhaloka Mawatha, Colombo 07

Jaadi, a traditional fish preservation technique introduced to Sri Lanka by the Portuguese, has virtually disappeared from the society, due to replacement by modern fish preservation techniques. The industry exists in isolated pockets in the country with little or no data available on quantity and quality of *Jaadi* production or traditional *Jaadi* processing technique. The objective of this study was to evaluate the physiochemical and microbial quality of *Jaadi* produced in the western coastal area of Sri Lanka and to characterize the microorganisms associated with *Jaadi* production, with identification at molecular level. Twelve *Jaadi* samples were drawn from eight selected locations along the coastal line from Galle to Chilaw. Processing techniques, type of fish used, raw materials added, sanitary conditions and scale of processing was recorded by an interview method. For microbiological analysis, the spread plate technique was followed. For molecular identification, total DNA was isolated and subjected to the Polymerase Chain Reaction and DNA sequencing carried out. The study showed that Sawalaya, Alagoduwa, Tuna and Sail fish were commonly used in *Jaadi* preparation. Scale of production varied from house-hold level to small scale industrial level with a production capacity of one metric ton per batch. Clay vats and plastic barrels were used to cure the fish with *'Goraka'* and salt mixed in sea water. Water activity and pH of the samples ranged from 0.734 to 0.823 and 4.26 ± 0.01 to 5.85 ± 0.02, respectively. High Colony Forming Units, ranging from 10^5 to 10^8 /g were detected in aerobic plate count and yeast and mould counts. Fifteen organisms were identified and characterized by PCR techniques. Of these, two organisms were non-pathogenic, namely, *Trichoderma longibrachiatum* and *Bacillus megaterium.* Among the pathogenic fungi, namely, *Aspergillus flavus*, Aspergillus *tamarii* and *Penicillium citranium* were detected in *Jaadi* collected from Balapitiya and Negombo. *Loma morphua* a fungal parasite associated with fish was detected in *Jaadi* collected from Balapitiya. Two human pathogens, namely, *Acinetobacter baumannii* and *Staphylococcus saprophyticus* that cause urinary tract infection were detected from samples collected from Payagala and Balapitiya. *Bacillus pumilis,* resistant to UV and desiccation was collected from Balapitiya. The traditional *Jaadi* industry is carried out under unhygienic conditions and therefore requires scientific inputs to upgrade this industry.

jaanaki@iti.lk