ABSTRACT

Crude sesame oil (CSO) is the widely used unrefined edible oil. Storage instability, off-flavour, and discoloration are, however, challenges in the industry. The purpose of this study was to map the sesame value chain, assess the suitability of CSO extraction plant, and analyze the microbial quality of CSO and premises environment. A structured Questionnaire and checklist were used to assess the sesame value chain and evaluate the suitability of the CSO extraction plant. Microbiological quality assessment was conducted using standard analytical methods. Stakeholders in the sesame value chain were inclusive of farmers, market mediators, traders, regulatory, extension workers and researchers. Though, illiteracy, inadequate technology, and infrastructure were the drawbacks. The CSO extraction plant was suitable apart from inadequate ingredients and CSO handling and unhygienic practices. Total aerobic bacteria (4.34 - 5.06 $\log_{10}$ CFU/m^2 on swap surfaces, 2.44 $\log_{10}$ CFU/g in CSO), total Coliforms (5.81 $\log_{10}$ CFU/g of animal manure and 1.36 $\log_{10}$ CFU of indoor air after extraction), yeasts and moulds (2.31 $\log_{10}$ CFU/g of sesame seed and CSO and 4.47 $\log_{10}$ CFU/m^2 of swap sample), *Aspergillus* species (1.17 - 1.33 $\log_{10}$ CFU/g of sesame seed/CSO, 3.37 -3.50 $\log_{10}$ CFU/m^2 of swap samples), and *Staphylococcus aureus* (2.09 $\log_{10}$ CFU/g of CSO, 2.56 - 3.22 $\log_{10}$ CFU/m^2 of surface swaps, 3.26 - 3.77 $\log_{10}$ CFU/protective clothing, 0.74 - 1.82 $\log_{10}$ CFU of the indoor and outdoor air) were detected. *Escherichia coli*, Salmonella and Shigella were not detected. In conclusion, potential microbial pathogens were detected to impose food safety problems and economic loss. To improve the sesame value chain and CSO quality workers training on good handling and hygienic practices and thoughtful regulatory implementation are significant.

Keywords

Crude Sesame Oil, Value Chain, Suitability, Microbial Quality, Pathogens