Preliminary work on coconut milk fouling deposits study.

ABSTRACT

The characterizations of coconut milk fouling deposits formed during pasteurization process at temperature from 70 to 80ºC were investigated. Both in-situ (using lab-scale plate heat exchanger) and ex-situ methods (using shakable water bath) were applied in preparing the fouling sample and for cleaning study. A few microanalyses such as proximate analysis, texture analysis and microstructure analysis were carried out to examine the characteristics of the coconut milk fouling deposits. Selection of raw material and determination of the optimal process parameters for pasteurization process were done to obtain a typical pasteurization condition as applied in the coconut milk product industry in Malaysia. The changes of the overall heat transfer coefficient (U) during the process were studied. The removal/cleaning of coconut milk fouling deposit was also studied at 80°C, 2 LPM and with 2 %V/V hydroxide of alkaline solution (optimal condition obtained from ex-situ method). The results indicate that fouling period was occurred during coconut milk pasteurization and it caused a resistance to heat transfer. Coconut milk fouling deposit which contains of high fat content (29.25%) can be removed by applying single stage clean-in-place (CIP) method with alkaline solution. The factors causing fouling were studied.

Keyword: Coconut milk; Fouling deposit; Cleaning; Pasteurization process; Plate heat exchanger.