

A systems approach to mathematical modeling of sterilisation process in palm oil mill

ABSTRACT

A model of sterilisation process of palm fruitlet was developed by applying finite-difference explicit method for two dimensions. Several relationships with parameters have been studied such as pressure, specific heat capacity (CP), stability criterion (r) and thickness (L). In performing calculations for heat transfer by conduction model of palm fruitlet, a few assumptions have been made to simplify the calculations. In this model, the palm fruitlets have been assumed as a rectangular. The program is capable of predicting the optimum condition for sterilisation process. The important findings in this study suggest the process can be operated at pressure approaching atmospheric pressure, i.e. (1.5 - 2.0 bar).

Keyword: Continuous steriliser; Mesocarp; Specific heat capacity; Stability criterion; Thermal diffusivity