

The application of microwave drying process for rambutan (*Nephelium lappaceum* L.) seed

ABSTRACT

This study aims to investigate the drying characteristics of rambutan seed in a microwave oven. The experiments were conducted at three power levels of 250, 600 and 1000 W and three drying times of 8, 9 and 10 h with three replications. Changes in these operational variables were conducted to highlight their effects on the drying characteristics observed through their drying profiles and final moisture contents. To estimate the drying behaviour, three thin layer equations were used to fit experimental data. Results showed that the drying time and final moisture content were decreased with an increase in the microwave power. Page model was selected as the best mathematical model to describe the drying process. Moisture diffusivity obtained varied from 4.10×10^{-9} to $9.64 \times 10^{-9} \text{ m}^2 \text{ s}^{-1}$ and the activation energy varied between 22.10 to 110.59 g.W^{-1} at different powers and drying times.

Keyword: Rambutan seed (*Nephelium lappaceum* L.); Microwave; Falling-rate period; Drying time; Thin layer equations