

UNIVERSITI TEKNOLOGI MARA

**DRYING OF OSMOTIC
DEHYDRATION *NEPHELLIUM*
LAPPACEUM (RAMBUTAN) IN AN
OVEN**

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Thesis submitted in fulfilment
of the requirements for the degree of
Master of Science

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AUTHOR'S DECLARATION

I declare that the work in this thesis/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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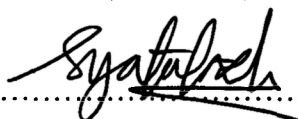
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ABSTRACT

Fresh Rambutan were cut into desired size and thickness. These samples were then undergone osmotic dehydration pre-treatment step which including blanching process prior drying by using an oven. These samples were divided into six sets which were set A, B, C, D, E and F based on the treatment solution used. Five different oven drying temperatures which were 40 °C, 50 °C, 60 °C, 70 °C and 80 °C have been chosen in this study. Drying behaviour of samples were analyzed by using five mathematical modelling namely Lewis Model, Page Model, Handerson and Pabis Model, Logarithmic Model and Two-term Model. The models were evaluated by comparing the value of coefficient of determination (R^2), chi square (χ^2), reduced sum square error (SSE) and root mean square error (RMSE). It was found that Page Model was the best model to describe drying behaviour of Rambutan dried at low drying temperature while Logarithmic Model was the best model that fit drying curve of Rambutan at high drying temperature. Quality of dried products such as colour changes, shrinkage, vitamin C content and shelf life also taken into consideration in this study. Colour of samples was measured by using Chroma-Meter (Konika Minolta CR-400) and the shrinkage was measured by using graph paper for area and vernier calliper for sample's thickness. High Performance Liquid Chromatography (HPLC) was used to determine the amount of vitamin C. As for shelf life, dried products were monitored for three months in terms of the presence of mold and colour changes. By comparing all samples, set F dried at 60 °C shows the best quality of dried products.

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