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# Drying Kinetics of Purple Flesh Sweet Potato Grown in Malaysia

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**Abstract**

Sweet potato is a very important crop for people in Southeast Asia because of its abundant source of carbohydrate. Currently, purple flesh sweet potato (var. Kedudut) has been introduced in Malaysia due to its health benefit properties. Additionally, the crop is highly perishable which needs to be preserved by processing into dried form. The dried sweet potato can be potentially used in various products such as premixed drinks, baby food and other health supplements. This draws the attention of the importance of drying in the processing of sweet potato. The aim of this paper is to discuss the drying kinetics of purple flesh sweet potato at different temperatures and its relation with effective moisture diffusivities and activation energy. Sweet potato was dried until the moisture content reduced to approximately 10 % by using cabinet dryer at 50°C, 60°C and 70°C at constant air velocity of 0.25 $\mathrm{m\,s^{-1}}$. Several mathematical models such as Wang and Singh, Henderson and Pabis, Lewis, Exponential decay and Page equations were used to describe the moisture ratio during drying process. The result shows the best fitting model to describe the drying curves of sliced purple flesh sweet potato is exponential decay equation for all drying temperatures. The effective diffusivity of sweet potato at 50°C, 60°C and 70°C drying temperature were in the range of $1.46 \times 10^{-9}$ to $3.39 \times 10^{-9}$ $\mathrm{m^2\,s^{-1}}$. The activation energy for the drying process was found to be 35.102 $\mathrm{KJ\,mol^{-1}}$ which is comparable with the reported values of various food materials.

**Keywords:** Dried sweet potatoes, drying, drying model, moisture content

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