

## Physical and Chemical Characteristics of Fermented 'Dayak' Wild Yam (*Dioscorea hispida* Dennst), Purple Yam (*Dioscorea alata* var. *purpurea*) and Air Potato (*Dioscorea bulbifera* L.) Flour as Food Ingredient

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**Abstract :** Indonesia has many kinds of tuber, especially in the Kalimantan. The kinds of tuber are Dayakwild yam(*Dioscoreahispida*Dennst), purple yam (*Dioscoreaalata* var. *purpurea*) and air potato (*Dioscoreabulbivera* L). However, all these tubers are underutilized. Three types of *Dioscorea*spp contain cyanogenic acid (HCN). It is dangerous to consume it directly. Thisresearchaimed to know the influence of drying temperatur as it impacts onthe physical and chemical characteristics of Dayakwild yam, purple yam and air potato flours. The method used to produce the flour was by introducing heat drying. The experimental design in this research study used was the complete randomized design with about three replications. The drying temperatures in this research were 50, 60, and 70°C respectively. The data wereanalysed descriptively. The results showed that thehigher temperature thelower colour value,water content, and protein content. The lowest water content and protein content were the purpleyam flour (4.84%) and air potato flour (3.96%) of 70°C drying temperature. The air potato flour hadthe highest mineral and fat content with the valuesof 4.63% and 7.38% respectively. The carbohydrate had higher percentage than other components. The carbohydrate contents of Dayak wild yam flour with different drying temperatures were 78.15% (50°C), 82.02% (60°C), and 82.72% (70°C) respectively. The carbohydrate contents of purple yam flour with different drying temperatures were 77.39% (50°C), 79.46% (60°C), and 81.36% (70°C) respectively. The carbohydrate content of air potato flour with different drying temperatures were 69.81% (50°C), 73.92% (60°C), and 74.34% (70°C) respectively. The research also showed that the heating with a temperature of 60 °C can affect the physical and chemical properties on three flours. The fermentation oftubers can remove the flour's HCN so it can be consumed and as a multi-function ingredient for food.

**Keywords :** Characteristics, *dioscorea* sp.,fermented flour.