

Physicochemical, Functional, and Bioactive Component Characteristics of Local White Sweet Potato Flour Subjected to Steam Blanching and Fermentation
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ABSTRACT

*White sweet potato (*Ipomoea batatas* L.) is a local food commodity with high carbohydrate content and a low glycemic index, making it a potential raw material for functional food. However, its processing into flour often results in suboptimal quality, characterized by browning and high moisture content. This study aimed to analyze the physicochemical and functional characteristics of local white sweet potato flour treated with steam blanching and fermentation. This research employed an experiment design consisting of three treatments: control (P0), steam blanching at 70°C for 5 minutes (P1), and fermentation using commercial starter for 24 hours (P2). Parameters analyzed included color, flour yield, bulk density, moisture content, ash content, protein content, fat content, carbohydrate content, total dietary fiber, amylose, amylopectin, swelling power, Water Holding Capacity (WHC), Oil Holding Capacity (OHC), and resistant starch. Data were analyzed descriptively quantitatively and presented in the form of bar charts. The results indicated that the control treatment (P0) produced the highest flour yield (16.56%), fat content (1.21%), and carbohydrate content (82.96%). Steam blanching (P1) yielded flour with the highest bulk density (0.75 g/mL), highest OHC (171.35%), and lowest ash content (2.32%). Fermentation (P2) produced flour with the highest lightness value ($L^* = 84.73$), highest protein content (4.74%), highest total dietary fiber (3.41%), highest swelling power (515%), highest WHC (243.80%), highest resistant starch content (14.43%), and lowest moisture content (9.14%). Fermented white sweet potato flour demonstrated superior functional properties and higher resistant starch content, indicating its potential as a functional food ingredient.*

Keywords: *Steam Blanching, Fermentation, Physicochemical Characteristics, Functional Properties, White Sweet Potato Flour.*