

***Characteristics of Physicochemical, Functional, and Bioactive Components of
Local Purple Sweet Potato Flour with Steam Blanching and Fermentation
Treatment***

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ABSTRACT

*Purple sweet potato (*Ipomoea batatas* L.) is a local food commodity with high potential as an alternative raw material for wheat flour substitution. The processing of purple sweet potato into flour requires appropriate pretreatments to preserve its physicochemical, bioactive, and functional quality. This study aimed to analyze the physical, chemical, bioactive, and functional characteristics of local purple sweet potato flour subjected to steam blanching and commercial starter fermentation treatments. This research employed an experimental design with three treatments, namely without treatment as a control (P0), steam blanching (P1), and commercial starter fermentation for 12 hours (P2). Parameters analyzed included color (L^* , a^* , b^*), yield, bulk density, moisture content, ash content, protein content, fat content, carbohydrate content, total dietary fiber, antioxidant activity, anthocyanin content, swelling power, Water Holding Capacity (WHC), and Oil Holding Capacity (OHC). The results demonstrated that the fermentation treatment (P2) produced flour with the highest brightness value ($L^* = 70.09$), lowest moisture content (7.69%), highest protein content (5.14%), highest fat content (1.37%), highest total dietary fiber (3.63%), highest WHC (186.92%), and highest OHC (145.76%). The steam blanching treatment (P1) yielded the lowest yield (13.39%) but exhibited the highest bulk density (0.73 g/ml). The highest anthocyanin content and antioxidant activity were obtained in the control treatment (P0), with values of 120.4 mg/100 g and 69.5%, respectively, indicating that all processing treatments caused degradation of bioactive compounds. Commercial starter fermentation generally provided a superior physicochemical and functional profile compared to steam blanching, although it resulted in a reduction of bioactive compounds in the purple sweet potato flour.*

Keywords : *Fermentation, Functional properties, Physicochemical, Purple sweet potato flour, Steam blanching*