



# Physicochemical and Functional Properties of Amban Banana Corm Flour (*Musa accuminata spp*); Waste Utilization of Banana Cultivation

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**Abstract:** Banana corm is an underutilized crop waste that shows many Ayurvedic medicinal uses other than as a bio-fertilizer; slow decaying rates may make it more vulnerable to a harboring place for banana-weevils (*Cosmopolites sordidus*). The current study aimed to comprehensively evaluate the physicochemical and functional properties of flour prepared from the Amban banana corm (ABCF), as well as its potential use as a raw material for food preparation. Corm pieces were treated with citric acid, lemon juice and sodium metabisulphate (SMS) as a ratio of 3:3:0.5%, respectively and the color of the pieces was determined by using Konica Minolta colorimeter. The enzymatic browning of banana corm was satisfactorily controlled by using lemon juice, citric acid and sodium metabisulphate at a ratio of 3:3:0.5%. The moisture content, crude protein, crude fat, crude fiber, total ash content, carbohydrate, potassium, pH, L\*, a\*, b\* values, and water activity of ABCF was  $7.79\pm 0.68\%$ ,  $4.90\pm 0.02\%$ ,  $0.041\pm 0.00\%$ ,  $63.02\pm 0.23\%$ ,  $10.74\pm 0.49$ ,  $13.51\pm 0.14$ ,  $486.8\pm 0.45$  ppm,  $6.0\pm 0.05$ ,  $83.38\pm 0.06$ ,  $0.07\pm 0.01$ ,  $11.74\pm 0.21$  and  $0.688\pm 0.00$ , respectively. The coumarin, terpenoids, flavonoids, phenols, and glycosides like phytochemicals have been identified. The tapped bulk density, loose bulk density, swelling capacity, oil absorption capacity, and water holding capacity of ABCF were 0.27 g/mL, 0.18 g/mL, 28.00 mL, 258.43% and 487.82%, respectively. The IC<sub>50</sub> values antioxidant activity of ABCF extracted with 80% methanol and distilled water were 69.81 and 73.63 µg/mL, and the total phenolic content was 0.29 and 0.09 GAE mg/mL for 80% methanol and distilled water extraction. In conclusion, ABCF shows more than 6 months of shelf life in ambient conditions and this was evaluated by considering organoleptic, microbiological and physicochemical properties of flour. This flour can be effectively incorporated into food preparations like noodles, bread, string-hoppers and frozen desserts, enhancing physicochemical, nutritional and functional properties without changing their original nature.

**Keywords:** Amban banana, Banana corm, Value added banana foods, Underutilized crop residue.