

Evaluation of characteristics of composite blend of Wheat (*Triticum aestivum L.*) and *Angili bathala* (*Ipomoea batatas*) cultivar flour for cake development

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Wheat flour (WF) is the key ingredient of the bakery industry. It is imported spending high foreign revenue. Local sweet potato cultivars like *Angili Bathala* are underutilized. Therefore, the potential of substituting WF with *Angili Bathala* flour (SPF) in cake production was studied. Cake formulas were produced as A (100% WF/ control), B (60% WF and 40% SPF), C (50% WF and 50% SPF), and D (40% WF and 60% SPF). Flour properties of SPF and physico-functional properties of most consumer accepted cake were analyzed using standard methods. Results of bulk density, water absorption capacity, oil absorption capacity, swelling capacity, and foaming capacity were $0.64 \pm 0.01 \text{ gcm}^{-3}$, $181.67 \pm 0.47\%$, $250.00 \pm 0.01\%$, $21.50 \pm 0.71 \text{ ml}$, and $0.00 \pm 0.00\%$. Formula C with 50% SPF was identified as the most consumer-accepted cake using a five-point hedonic scale. A significant relationship between consumer acceptability and sensory attributes (appearance, color, aroma, taste, mouth feel, after taste) was identified through Friedman test. Moisture, fat, total ash, and crude fiber contents were $15.28 \pm 0.01\%$, $19.38 \pm 0.01\%$, $3.24 \pm 0.01\%$, and $1.39 \pm 0.01\%$ respectively. Beta-carotene content, polyphenol content, and IC_{50} value for DPPH radical scavenging activity were $0.05 \text{ mg}/100 \text{ g}$, $0.008 \text{ GAE}/\text{ml}$, and $0.109 \text{ mg}/\text{ml}$ respectively. Results of textural properties for cake were as follows; Hardness ($260.50 \pm 0.71 \text{ g}$), chewiness ($139.44 \pm 0.40 \text{ mJ}$), gumminess ($257.70 \pm 0.00 \text{ g}$), adhesiveness ($0.02 \pm 0.01 \text{ mJ}$), springiness ($56.31 \pm 0.03 \text{ mm}$), cohesiveness (0.97 ± 0.04) and resilience (0.54 ± 0.01). Therefore, results of the research revealed that 50% of wheat flour can be substituted with *Angli Bathala* sweet potato flour in cake production while value addition to the local cultivar.

Keywords: Angili bathala, Antioxidant properties, Bakery industry, Proximate composition, Textural properties

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