

Potential of African Butter (*Pentadesma butyracea*) Fruit Pulp in Selected Food Product Development

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This study investigates the potential of the African butter (*Pentadesma butyracea*) fruit pulp for food product development. The best maturity stage of fruit among the four maturity stages was selected based on the physicochemical properties. Three formulations of toffee with African butter fruit juice (10%, 20%, and 30%) were developed and analyzed for preference of colour, aroma, texture, taste and overall acceptability using a ranking test. The proximate composition of the most preferred toffee was analyzed. Jam was developed using 40% of the pulp with other ingredients and adjusting the TSS to 68%. It was compared with a commercially available wood apple jam using the hedonic test for preference. Pulp of the mature fruit was selected as the best maturity stage and it contained 0.19 ± 0.02 g/100 g of ascorbic acid (AC), 28.17 ± 0.17 mg/mL of phenolic compounds, 13.07 ± 0.07 of total soluble solids (TSS), $0.97 \pm 0.04\%$ of titratable acidity (TA) and 3.22 ± 0.07 of pH. The toffee made with 20% fruit juice was the most preferred formulation and its pH, TA, TSS, total sugar content, and AC content were 3.9 ± 0.03 , $0.51 \pm 0.02\%$, $74.6 \pm 0.44\%$, $74.54 \pm 0.84\%$ and 0.08 ± 0.01 (g/100 g) respectively. pH, TA, AC and TSS of the jam were 3.2 ± 0.02 , $0.51 \pm 0.01\%$, 0.10 ± 0.01 (g/100 g) and $68.2 \pm 0.11\%$, respectively. The proximate composition of the jam was determined as $68.56 \pm 0.05\%$ carbohydrates, $2.19 \pm 0.07\%$ proteins, $2.14 \pm 0.27\%$ fiber, and $0.32 \pm 0.03\%$ minerals. The developed jam was significantly preferred ($P < 0.05$) over the commercial jam for colour, texture and overall acceptability. The total phenolic content, total flavonoid content and DPPH scavenging activity of the jam were 223.45 ± 1.02 (mg Gallic Acid Equivalent (GAE)/g dry weight (dw)), 41.64 ± 0.98 (mg Quercetin Equivalent (QE)/g dw) and $65.23 \pm 0.31\%$ respectively while the values were 112.34 ± 0.61 (mg GAE/g dw), 31.98 ± 0.18 (mg QE/g dw) and $49.32 \pm 0.2\%$ respectively for the toffee. Results indicated that the pulp has the potential to be developed into different food products.

Keywords: African butter fruit, jam, toffee, physicochemical properties, antioxidants