

Formulation and Quality Evaluation of Flavored Peanut Spread Enriched with Jackfruit (*Artocarpus heterophyllus*) Seed Powder

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The development of food products using underutilized agricultural by-products has gained increasing attention as a sustainable approach to enhancing nutritional quality and reducing food waste. This study aimed to develop and evaluate the quality of flavored peanut spread formulations enriched with jackfruit seed powder. Jackfruit seed powder was incorporated to enhance the nutritional and functional properties of the flavored spread. Peanuts contributed high-quality protein, healthy unsaturated fats, and essential micronutrients, thereby enhancing the product's overall nutritional value. The study focused on evaluating the physicochemical, nutritional, sensory, and storage characteristics of flavored peanut spreads enriched with jackfruit seed powder. Three different flavored formulations, garlic (F2), vanilla (F3), cocoa (F4), and a control (F1) formulation were developed using peanut, jackfruit seed powder, sunflower oil, honey, vinegar, and salt. Sensory evaluation of the formulated spreads was conducted with 35 semi-trained panelists on a five-point hedonic scale to assess appearance, texture, spreadability, aroma, flavor, mouthfeel, and overall acceptability. Based on sensory scores, the garlic-flavor-incorporated formulation (F2) was identified as the most acceptable treatment (overall, $p < 0.05$). Chemical analysis of the selected garlic-flavored peanut spread enriched with jackfruit seed powder (F2) formulation revealed a moisture content of 4.08%, pH of 6.3, ash content of 3.33g/100g, acidity (Oleic acid) of 0.49%, fat content of 33.83g/100g, and yeast and mold count of less than 1×10^2 CFU/g, indicating good product stability and microbiological safety. This research demonstrates the potential of jackfruit seed powder as a functional ingredient in peanut spread, adding value to an often-discarded by-product while supporting food innovation and functional food development.

Keywords: Cocoa, Garlic, Jackfruit seed powder, Peanut, Vanilla