Development of Sweet Mix Spicy Jam Incorporated With Ripened Banana Pepper *(Capsicum Annuum)* and Ripened Jackfruit *(Artocarpus Heterophyllus)* and Evaluation of Its Quality Parameters

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Abstract

Jam is an excellent option for preserving fruit against seasonal changes. Ripe banana peppers are often under-consumed and prone to high post-harvest damage, despite being cheap at harvest. Jackfruit is seasonal, with much of its yield going to waste during peak season. To mitigate economic losses from post-harvest waste and seasonal fluctuations, a novel jam made from banana peppers and ripened jackfruit offers a solution for creating a more resilient and efficient supply chain. The spicy mixed sweet jam provides a unique flavor experience. Four jam samples (T1, T2, T3, and T4) were developed with varying sugar concentrations of 55%, 60%, 65%, and 70%. Sensory evaluation was conducted by 30 panelists using a 1–5-point hedonic scale, assessing color, taste, flavor, texture, aroma, appearance, spreadability, and overall acceptability. The T2 sample outperformed the others. Physicochemical analysis showed significant variation among samples, with moisture content (24.16%-30.73%), ash (0.318%-0.514%), acidity (0.19%-0.96%), TSS (68%-71%), and pH (3.66-3.84). The T2 sample had the best quality with moisture content (14.39%), pH (3.78), TSS (68%), ash (0.318%), titratable acidity (0.19%), protein (0.6%), and fat (0.02%). Based on sensory and physicochemical analysis, the jam made with ripened banana pepper and jackfruit pulp 40% and 60% added sugar was selected as the best. Future research could explore optimizing the processing techniques or testing the jam's shelf life and consumer acceptance on a larger scale, further supporting sustainable food production and waste reduction strategies.

Keywords: *Banana peppers, Jackfruit, Jam, Post-harvest, Spicy*