

Production of fermented beverage from fruit rags of jackfruit (*Artocarpus heterophyllus*)

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Abstract

Jackfruit (*Artocarpus heterophyllus*) is the largest fruit with 25-50 cm in diameter and up to 90 cm in length. Each fruit contains many large kernel segments or aril as the edible part, separated into compartments by latex-like filaments called “rags”. The pulp of jackfruit is usually used in the food industry as vacuum dried product, but the rags which comprise about 25.3% of fruit weight are waste in Vietnam. To reduce the waste and develop new value-added products, producing fermented beverage from the rags of jackfruit was studied. The rags were blanched in boiling water (95-100°C) for different times, and minced with water at a ratio of 1:5. The mixture was transferred to fermentation containers and added with an enzyme. The liquid from jackfruit rags was produced using pectinase at different rates (0, 0.1, 0.15, 0.2, 0.25, 0.3, and 0.35) and temperatures (70, 80, 90, 100°C). During juice making, pectinase had highly significant effects on the liquid yield. The optimal conditions for maximum juice yield were the use of 0.3% pectinase at 90°C with a time of 2.5 min. Fermentation process was studied using 10-10⁶ cells of *Saccharomyces oviformis* .ml⁻¹ at different temperatures (70, 80, 90, 100°C), pH (3.8, 4.2, 4.6), Brix (19, 21, 23) and fermentation times (30, 45, 60, 90 min), using Modde 5 program to determine the optimum formulation. The optimum conditions for juice making were 21°Brix and pH 4.6. The optimum fermentation time was in 3.5 d at 25°C. The final product had 11°Brix, pH 4.35, 1.28% total acids, and 5.5% (v/v) ethanol. It was evaluated to have acceptable sensory quality.