CHARACTERISTICS OF STORED JACKFRUIT SEED AND THEIR INFLUENCE ON OIL YIELD AND PROPERTIES

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ABSTRACT

CHARACTERISTICS OF STORED JACKFRUIT SEED AND THEIR INFLUENCE ON OIL YIELD AND PROPERTIES

Jackfruit seeds are a valuable resource due to their high oil content, accounting for up to 40 – 45% of the seed mass. Previous studies have proven that biodiesel can be derived from jackfruit seed. Jackfruit seed oil has been reported to have low FFA value, acid value and saponification value but high peroxide value, aligning with biodiesel properties. Despite its abundance, data on the impact of storage period on jackfruit seed properties and its effect on oil yield, and properties has been lacking. In this study, the properties of jackfruit seed stored on weekly basis and its effect on oil yield and properties were evaluated through several analyses. From 0 – 28 days of seed storage, moisture, fat and ash content decline. Fresh seeds had the highest moisture (29.02%), fat (10.34%), and ash (2.59%) content, which decreased to 13.51%, 10.13%, and 1.49%, respectively, by day 28 of seed storage. Moisture and fat content significantly reduce oil yield due to reduced seed vigour and lipid oxidation, while ash content insignificantly affects the yield. Oil yield reduced from 19.91% to 17.78% from day 0 - 28 days of seed storage while the FFA value , acid value, and saponification values increased from day 0 to day 28, with the lowest FFA value (115.08), acid value (229.01), and saponification value (3015.38) observed on day 0, which increased to 137.04, 272.21 and 3997.13, respectively, by day 28 of seed storage. Increments in FFA value, acid value and saponification value indicate deterioration of oil. From the FT-IR spectrum of oil, intensity of peak corresponds to hydroperoxides and methyl group increased due to oxidation, confirming a decline in oil quality. Hence, storing jackfruit seed for a long period is not recommended due to declining properties leading to reduced yield and quality of oil.

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