



EFFECTS OF FRUIT PARTS AND POST-FLOWERING TIME ON THE CHARACTERISTICS AND BIOACTIVITIES OF JACKFRUIT (*ARTOCARPUS HETEROPHYLLUS* LAM.) IN CAN THO CITY AND THE MEKONG REGION

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Abstract

The study qualitatively and quantitatively analyzed bioactive compounds (alkaloids, flavonoids, phenolics & tannins, proteins, amino acids, carbohydrates, saponins, polyphenols, carotenoids) and antioxidant activities (DPPH, ABTS, TAC) in jackfruit pulp, fibers, and seeds collected from six regions of the Mekong Delta, including Thoi Lai, Can Tho (TL-CT); Phong Dien, Can Tho (PD-CT); Co Do, Can Tho (CD-CT); Cai Lay, Tien Giang (CL-TG); Chau Thanh, Hau Giang (CT-HG); and Chau Thanh, Ben Tre (CT-BT), at three maturity stages (100, 110, and 120 days). The results indicated that harvest time played a more significant role than locality. The pulp was richest in phenolics, tannins, and flavonoids at 100–110 days, the fibers contained higher levels of alkaloids and flavonoids at 120 days, while the seeds were consistently rich in proteins, amino acids, and carbohydrates at all stages. The external appearance and physical properties of jackfruit (shape, size, weight, component ratios, color, aroma, taste) increased and changed markedly with ripening, reaching optimal values at 120 days, with the highest pulp ratio, attractive color, and pronounced sweetness. The contents of bioactive compounds and antioxidant capacities generally declined with increasing maturity, with total polyphenols ranging from 0.07 to 0.32 mg GAE/gDW and flavonoids from 0.03 to 0.44 mg QE/gDW. In contrast, carotenoid content increased, ranging from 0.11 to 0.63 mg/mL. Notably, jackfruit seeds exhibited superior total antioxidant capacity (TAC) (123.67 mg AA/gDW) compared to pulp and fibers. Antioxidant activity decreased with advancing maturity, as reflected by IC₅₀ values of DPPH (99.32–367.33 µg/mL) and ABTS (46.21–287.07 µg/mL), indicating that seeds and pulp demonstrated stronger antioxidant potential than rag.