Exploration of antibacterial and antioxidative activity of seed/peel extracts of Southeast Asian fruit Durian (*Durio zibethinus*) for effective shelf-life enhancement of preserved meat

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ABSTRACT

This investigation was aimed to explore antibacterial and antioxidant compounds in *Durio zibethinus* (Durian) peel/seed extracts and their effectiveness in preventing meat decay. The antioxidant compound from *D. zibethinus* peel/seed extracts is determined using total phenolic content (TPC) and total flavonoid content (TFC). The antibacterial ability of sample extract was proven by the inhibition zone observed in the agar plate containing four foodborne pathogens. The results obtained proved that the antioxidant activity of a 9% concentration of both peels/seeds demonstrated more significant p value for all the measurements ($p < .05$). However, based on TFC and TPC, peels exhibited higher content compared to seeds. The visual observation meat treated with peel/seed extracts seemed to have low metMb accumulation as the brown discoloration slowly compared to control. The qualitative tandem liquid chromatography quadrupole time of flight mass spectrometry (LC-QTOF-MS) analysis led to the identification of 159 compounds and 79 compounds. All samples were moderately active towards the bacteria tested by representing halozones formation in size range from 12.0 to 21.0 mm. The pH of marinated meat with sample extract indicated that the meat is safe and not required immediate consumption after nine days. The results revealed the potential of utilizing *D. zibethinus* peels and seeds in prolonging the shelf life of meat.

KEYWORDS

Antioxidants; Food preservation; Food preservatives; Fruits; Liquid chromatography; Mass spectrometry; Meats; Plants (botany)

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