

## Phenolic and flavonoid contents and antioxidant activity of methanolic extract of *Durio zibethinus* Murr. peels

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*Durio zibethinus* (durian), known as the King of fruits is one of the most important seasonal fruits in tropical Asia. Even though the edible parts of durian are known to be rich in bioactive compounds, less research has been conducted to investigate the potential bioactivity of durian peels and seeds which are of less commercial value and being disposed leading to environmental pollution. Therefore, this research was mainly focused on exploration of bioactive properties in methanolic extract of durian peels. Firstly, the dried durian peels were Soxhlet extracted using methanol and then the crude extract was sequentially partitioned in hexane, dichloromethane and methanol (30%). The antioxidant activity, total phenolic content (TPC) and total flavonoid content (TFC) of each fraction were evaluated using DPPH ( $\alpha$ ,  $\alpha$ -diphenyl-  $\beta$ - picrylhydrazyl) assay, Folin-Ciocalteu assay and aluminium chloride spectrophotometric assay respectively. Antioxidant activity (IC<sub>50</sub>) and its correlation to TPC and TFC were analyzed by the Pearson's method. The dichloromethane fraction showed the highest antioxidant activity (IC<sub>50</sub> 179.9  $\pm$  6.6  $\mu$ g/ml) with high TPC and TFC (85.82  $\pm$  12.11 mg gallic acid equivalent/g dried weight and 12.66  $\pm$  1.94 mg of quercetin equivalent/g of dried weight, respectively). According to the Pearson's correlation, a strong positive correlation was observed between the antioxidant activity and the TPC of fractions of methanol extracts of durian peels with a Pearson coefficient of 0.9904 and a moderate positive correlation was noticed between the antioxidant activity and TFC of the fractions with a Pearson coefficient of 0.6553 indicating that phenolic compounds in durian peels may contribute to their strong antioxidant activities with somewhat contribution from the flavonoid compounds. As the dichloromethane fraction had constituents with the highest antioxidant activity, it was further separated by column chromatography and analyzed by GC-MS to identify its volatile compounds. The results revealed that the dichloromethane fraction of durian peels was rich in [1,2-Benzenedicarboxylic acid, bis (2-ethylhexyl) ester], [2,3-Diphenylquinoxaline], [2-Coumaranone], [4-((1E)-3-Hydroxy-1-propenyl)-2-methoxyphenol], [7,9-Di-tert-butyl-1-oxaspiro (4,5) deca-6,9-diene-2,8-dione] and [Phenol, 2,4-bis(1,1-dimethylethyl)] which are known to exhibit antioxidant activity.

**Keywords:** *Durio zibethinus*, Antioxidant, TPC, TFC, Correlation

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