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The Antioxidant Activity, Total Phenolic, and Flavonoid Content of the Mango (Mangifera indica L.) Leaf Extracts: Effects of Extraction Methods

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Abstract

Bad air conditions can be caused by cigarette smoke, industrial fumes or vehicle exhaust gases. This condition can result in the emergence of free radicals. A free radical can cause a chain reaction that can damage tissue. This reaction can be suppressed by compounds that are antioxidants. Mango leaves (*Mangifera indica L.*) contain flavonoids, alkaloids, saponins, and tannins. Flavonoid compounds are known to have the ability to act as antioxidants. Phenolic compounds, such as flavonoids, are volatile and can be significantly lost during various processing stages. Therefore, an efficient extraction process is needed to maintain the compound content in natural ingredients. This research analyzes the optimal method that can produce high phenolic, flavonoid, and antioxidant activity content. The extraction methods used include ultrasonic wave-assisted extraction, reflux, and maceration. Determination of total phenolic content was carried out using the Folin-Ciocalteu reagent, total flavonoid content was carried out using the AlCl3 reagent, and antioxidant activity was carried out using the DPPH method. The results showed that the highest phenolic content was obtained by maceration extraction with TPC of 218.86 ± 4.95 mgGAE/g, the highest total flavonoid content was obtained by reflux extraction with TFC of 301.97 ± 30.07 mgQE/g, and antioxidant activity. The highest was obtained by maceration extraction which produced an IC50 value of 5.20 μg/mL.

Keywords : Free Radicals, Antioxidants, Phenolics, Flavonoids, Mango Leaves