Evaluation Of Antioxidant Properties and Activities of Swietenia Macrophylla Leaf Extract at Different Temperatures

ABSTRACT

Swietenia macrophylla, a member of the Meliaceae family, is a medically significant plant native to tropical and subtropical regions worldwide. Due to its therapeutic benefits, S. macrophylla has been extensively utilized in traditional medicine for treating a diverse range of illnesses. The aim of this study was to gather existing information on the antioxidant properties and activities of the aqueous extract obtained from S. macrophylla leaves, employing various extraction temperatures (30, 40, 50, and 60°C). The antioxidant properties were determined by total phenolic content and total flavonoid content while the assessment of antioxidant activities was conducted through the utilization of ferric reducing antioxidant power (FRAP) assays. Among the aqueous leaf extracts, the highest levels of total phenolic content were recorded at 50°C, followed by 60°C, 40°C, and 30°C (2.915, 1.773, 1.714, and 1.258 mgGAE/g). On the other hand, the total flavonoid content for aqueous extract at 50°C, 40°C, 60°C, and 30°C were 4.781, 2.470, 2.216, and 2.144 mgQE/g, respectively. The highest level of ferric reducing antioxidant capacity was similarly observed at 50°C, measuring 3.153 mg/g, in contrast to the value of 0.881 mg/g, 2.091 mg/g, and 2.031 mg/g recorded at 30°C, 40°C, and 60°C, respectively. The extracts exhibited notable variations in the concentrations of total phenolic and total flavonoid contents as well as in antioxidant activities at different temperatures, highlighting the impact of temperature on the extraction process of S. macrophylla.