Evaluation of antioxidant activity and total phenolics of selected mangrove plants in Sabah

ABSTRACT

In recent years, research on medicinal plants has attracted much attention due to their wide range of pharmacological significance. Mangroves are biochemically unique, producing a wide array of natural products with unique bioactivity due to their ability to survive in stressful conditions of high salinity, and low air humidity as well as strong variations therein. Six species of mangrove (Avicennia marina, Bruguiera gymnorrhiza, Ceriops tagal, Rhizohora apiculata, Rhizophora mucronata and Xylocarpus granatum) from different parts of the leaves, stem and roots were extracted successively with ethanol and water. This study aims to measure quantitatively the total phenolic content and assess the radical scavenging activity of the 26 mangrove extracts. All the extracts were subjected to the Follin-Ciocalteu assay for their phenolic content and the DPPH scavenging assay for the antioxidant activity respectively. Based on the results, the highest phenolic content was observed in ethanol extracts of C. tagal leaves (471.78 ± 0.056 mgGAE/g) while the lowest amount of phenolic was observed in water extract of A. marina root (20.40 ± 0.001 mgGAE/g). Interestingly, the ethanolic extract of C. tagal leaves also exhibited the strongest antioxidant activity with an IC50 value of 9.37 ppm. Among the six species investigated, C. tagal leaves extracts showed high total phenolic content and strong antioxidant activities and may be used as a potential source of natural antioxidants against free radical-associated diseases.