Characterization of phenolic compounds, carotenoids, vitamins and antioxidant activities of selected Malaysian wild edible plants

Abstract

This study was carried out to characterize phenolic compounds, carotenoids, vitamins and the antioxidant activity of selected wild edible plants. Plant extracts were purified, and phenolic compounds comprising 11 phenolic acids (hydroxybenzoic acid and hydrocinnamic acid) and 33 flavonoids (including catechin, glycosides and aglycones) were analysed using High Performance Liquid Chromatography - Diode Array Detector (HPLC-DAD). Furthermore, the contents of ascorbic acid and tocopherol ((α and γ tocopherol) and carotenoids (lutein and β-carotene) were also determined. The major phenolics identified consisted of glycosides of flavones (apigenin and luteolin) and flavonols (kaempferol and quercetin). Among the phenolic acids identified after hydrolysis, coumaric acid was the predominant phenolic acid in all the extracts of wild plants. Ascorbic acid [53.8 mg/100 g fresh weight (FW)] and β-carotene (656.5 mg/100 g FW) showed the highest content in the leaf of Heckeria umbellatum. In conclusion, the leaves of H. umbellatum, Aniseia martinicensis and Gonostegia hirta have excellent potential in the future to emerge as functional ingredients.