

Antioxidant's properties of *Murraya koenigii*: a comparative study of three different extraction methods

ABSTRACT

Nutraceutical and pharmaceutical industries have been increasingly engaged in finding natural alternatives compounds as potential antioxidants. The use of phytochemicals is introduced as a good source of natural antioxidants. *Murraya koenigii* leaves, commonly used in cooking and traditional medicines have been examined for their remarkable antioxidant potential, yet still, it remains an understudied herb. Therefore, this study aimed to determine the antioxidant properties and flavonoids profile in *M. koenigii* leaves extracted using; solvent assisted extraction (SAE), microwave assisted extraction (MAE) and ultrasonic assisted extraction (UAE). The antioxidant properties of *M. koenigii* were analysed qualitatively and quantitatively using high performance liquid chromatography (HPLC). *M. koenigii* leaves extracted using the UAE method have responded strongly towards a 2, 2-diphenyl -2-picryl-hydrazyl DPPH assay with the highest inhibition (%) of 78.00 ± 1.00 . Using the ferric thiocyanate (FTC) and thiobarbituric acid (TBA) method assays, the *M. koenigii* leaves with the lowest absorbance were assigned as a sample with the highest antioxidant activity. The *M. koenigii* leaves extracted using UAE had the lowest absorbance with 0.01 ± 0.00 . In the TPC assay, the MAE method showed the highest total phenolic content (120.60 ± 14.81 mg GAE/g sample). The TFC assay demonstrated that MAE methods have the highest total phenolic content (93.38 ± 4.33 mg QE/g sample). The *M. koenigii* leaves extracted by MAE showed the highest gallic acid, catechin, epigallocatechin gallate, rutin and kaempferol concentration (mg/L). *M. koenigii* leaves subjected to SAE extraction has the highest concentration of p-coumaric acid, myricetin and quercetin (mg/L). This study found that *M. koenigii* leaves extracted using UAE exhibited better antioxidant activities than that of MAE and SAE. These useful findings have managed to narrow the knowledge gap regarding the effects of different extraction methods on the antioxidant property of *M. koenigii*.