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Abstract

Caffeic acid derivative from *Clinopodium umbrosum*

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Background and objectives: Plants of genus *Clinopodium* have been used in different cultures as traditional medicines. Due to the importance of medicinal properties of the genus *Clinopodium*, *C. umbrosum* was selected for phytochemical analysis along with evaluation of its antioxidant property. **Methods**: The aerial parts of *C. umbrosum* were extracted with petroleum ether, chloroform, and methanol. Later, the methanol extract was fractionated via solid phase extraction and reversed phase high performance liquid chromatography. Consequently, structure of the isolated compound was analyzed through spectral analysis of 1D and 2D NMR data. Besides, the essential oil of *C. umbrosum* achieved through hydrodistillation was analyzed via gas chromatography-mass spectrometry (GC-MS). Additionally, the antioxidant property of *C. umbrosum* methanol extract together with its phenolics and flavonoids content were assessed. **Results***:* Structure elucidation of the purified compound revealed presence of a caffeic acid derivative in *C. umbrosum* methanol extract. GC-MS analysis of the essential oil showed limonene, acetophenone, palmitic acid and phytol as the most frequent components of the essential oil. Moreover, the RC_{50} value for free radical scavenging activity of the methanol extract was determined as 38.52 µg/mL and values for the total phenolics and flavonoids contact were calculated as 5.14 g gallic acid equivalent and 4.25 g quercetin equivalent per 100 g of dried plant material, respectively. **Conclusion**: Overall, the present study was the first report on the phytochemical analysis of *C. umbrosum* which revealed presence of rosmarinic acid as the main component of the methanol extract with prominent antioxidant activity.

Keywords: Lamiaceae, palmitic acid, rosmarinic acid

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