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GC-MS analysis, antioxidant and cytotoxic activities of *Mentha spicata*

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Mentha spicata medicinal properties are well known. In this study, total phenolic and flavonoid contents and the antioxidant activity of the methanol extract of *Mentha spicata* were determined as well as evaluation of the cytotoxic activity of it. Also, the identification of some bioactive compounds in the plant was analyzed. The antioxidant activity was determined by two methods, DPPH (2,2-diphenyl-1-picrylhydrazyl) and ABTS (2,2'-Azinobis (3-ethylbenzthiazoline-6-sulphonic acid) while, the cytotoxic assay was determined by MTT assay on HepG-2 (human hepatocellular carcinoma) and MTC-116 (human colon carcinoma). Regarding to the chemical identification of methanol extract was carried out by GC-MS analysis. The results proved that *Mentha spicata* has high total phenolic and flavonoid contents (388.20±2.38 mg GAE/g of extract & 204.01±17.93 mg RE/g of extract) respectively. Also, exhibited promising antioxidant activity by DPPH & ABTS (IC₅₀=51.13±1.29 µg/ml & 184.31±0.81 µg/ml) respectively. The methanol extract of the plant showed a good cytotoxic effect on HepG2 and HTC-116 (IC₅₀=25.2±3.6 µg/ml & 62.1±4.9 µg/ml) respectively. GC-MS analysis of the methanol extract of *Mentha spicata* showed 43 oxygenated hydrocarbon compounds. The major ones are hexadecanoic acid, methyl ester (palmitic acid ester) (31.51%) followed by 9,12,15-octadecatrienoic acid, methyl ester (CAS) (methyl linolenate) (22.10%), 2-Pentadecanone, 6,10,14-trimethyl-(CAS) (6.82%), phytol (6.20%), 9,12-Octadecadienoic acid (Z,Z)-, methyl ester (6.18%), hexadecanoic acid (palmitic acid) (5.95%) and methyl stearate (4.49%). The result demonstrated that *Mentha spicata* is a potential antioxidant and anticancer agents.

Biography

Heba Abdel-Hady is a Researcher of Medicinal Chemistry at Theodor Bilharz Research Institute (TBRI). She has completed her graduation with a BSc in the Faculty of Science at Al-Azhar University (Girls Branch), Postgraduation in Biological Application of Natural Products with an MSc. She has carried out research work on isolation and purification of the different classes of natural products which isolated from the medicinal plants. In details, her research interests with bioactive effect of the natural products as well as treatment and preventive of diagnostic diseases and also, evaluation of the toxic effect of any extract or isolated compound *in-vivo* on all physiological parameters. She has participated as a member in three research project funded by TBRI. She has supervised two PhD theses. She has served as an Editorial Board Member and Reviewer in some journals.

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