Pharmacogenetic properties of *Mentha spicata* L. leaves and isolation of L-Carvone from its leaves

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ABSTRACT

The present study aimed to explore the phytochemical constituents, antioxidant properties, and characterization of M. spicata L. leaves, with a focus on isolating and identifying L-Carvone. Phytochemical screening was performed using the condensation method, while extracts were prepared with solvents of increasing polarity. Qualitative analysis of phytochemicals was carried out on different solvent extracts, whereas quantitative estimation and antioxidant assays were performed on the hydroethanolic (50:50) extract. GC-MS and FT-IR analyses were used for characterization, and Soxhlet extraction followed by column chromatography enabled isolation of compounds. TLC and HPLC confirmed the presence of L-Carvone. Results indicated that the hydroethanolic extract was rich in steroids and exhibited strong antioxidant activity, with GC-MS, FT-IR, and chromatographic methods confirming L-Carvone in the isolated fraction.

Keywords: Analytical standardization, isolation, L-Carvone, phytochemistry, spearmint