

Hexane Extract of *Thymus serpyllum* L.: GC-MS Profile, Antioxidant Potential and Anticancer Impact on HepG2 (Liver Carcinoma) Cell Line

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Abstract : Free radical damage induced by reactive oxygen species (ROS) contributes to etiology of many chronic diseases, cancer being one of them. Recent studies have been successful in ROS targeted therapies via antioxidants using mouse models in cancer therapeutics. The present study was designed to scrutinize anticancer activity, antioxidant activity of 5 different extracts of *Thymus serpyllum* in MDA-MB-231, MCF-7, HepG2, HCT-116, PC3, and A549. Identification of the phytochemicals present in the most active extract of *Thymus serpyllum* was conducted using gas chromatography coupled with mass spectrophotometry and antioxidant activity was measured by using DPPH radical scavenging and FRAP assay. Anticancer impact of the extract in terms of IC₅₀ was evaluated using MTT cell viability assay. Results revealed that the hexane extract showed the best anticancer activity in HepG2 (Liver Carcinoma Cell Line) with an IC₅₀ value of 23 ± 0.14 µg/ml followed by 25 µg/ml in HCT-116 (Colon Cancer Cell Line), 30 µg/ml in MCF-7 (Breast Cancer Cell Line), 35 µg/ml in MDA-MB-231 (Breast Cancer Cell Line), 57 µg/ml in PC3 (Prostate Cancer Cell Line) and 60 µg/ml in A549 (Lung Carcinoma Cell Line). GC-MS profile of the hexane extract showed the presence of 31 compounds with carvacrol, thymol and thymoquinone being the major compounds. Phenolics such as Vitamin E, terpinen-4-ol, borneol and phytol were also identified. Hence, here we present the first report on cytotoxicity of hexane extract of *Thymus serpyllum* extract in HepG2 cell line with a robust anticancer activity with an IC₅₀ of 23 ± 0.14 µg/ml.

Keywords : *Thymus serpyllum* L., hexane extract, GC-MS profile, antioxidant activity, anticancer activity, HepG2 cell line

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