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Phytochemical Exploration of Plectranthus stocksii Hook. F. for Antioxidant and Cytotoxic Properties

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Abstract : Plants are important prospective wealth of a country, combination of local health care information about a specific plant together with data published by several groups of scientists, can help in deciding whether it should be considered acceptable for medicinal use. In the developed countries, too, plant-derived drugs may be of importance. The wide variety of ailments that are being treated with Plectranthus is an indication of the medicinal value of the genus. A number of species are not toxic and so may be taken orally, whilst others are used topically on the skin or as enemas. This study was designed to evaluate the different properties of Plectranthus stocksii and the aerial parts were collected and extracted with petroleum ether, chloroform, ethyl acetate, acetone and methanol by Soxhlet apparatus and finally macerated with hot water. The quantification assays revealed that, leaf methanol extract showed higher total phenolic (415.41 mg GAE/ g extract) and tannin (177.53 mg GAE/ g extract) contents whereas leaf ethyl acetate exhibited higher flavonoids (777.11 mg RE/ g extract) content. The antioxidant efficiency of the extracts was analyzed by various radical scavenging assays. Among the different antioxidant assays, leaf ethyl acetate extract showed higher free radical scavenging activities against DPPH (IC50 = 3.46 µg/mL), ABTS (27417.65 µM TE/ g extract), FRAP (152.17 mM Fe(II)E/ mg extract) NO• radical (21.46%) and Superoxide radical (IC50 = 24.16 µg/mL) assays. All the parts P. stocksii extracts showed significant protection against OH• induced DNA damage at 50 µg concentration. The HPLC analysis of leaf ethyl acetate extract revealed the presence of Quercetin (30.29 µg/mg of extract) was the major compound. Anticancer activity of leaf ethyl acetate extract showed better IC50 values were 48.87 and 36.08 µg/ mL against MCF-7 and Caco-2 respectively. From this study, P. stocksii can act as a potent antioxidant and cytotoxic antimicrobial agent. The scope for drug development from this plant is endless and there is undoubtedly a call for further research in pharmaceutical industries.

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