GC-MS ANALYSIS OF ORTHOSIPHON COMOSUS WIGHT EX BENTH.

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ABSTRACT : India is one of the world’s 12 biodiversity centers with the presence of over 45000 different plants species. India’s diversity is unmatched due to the presence of 16 different agro-climatic zones, 10 vegetation zones, 25 biotic provinces and 426 biomes (habitats of specific species). Orthosiphon comosus Wight ex Benth. has very little previous record of use in traditional medicine. Orthosiphon comosus is commonly known as “Pavazha thulasi” in Tamil and is a medium sized shrub and endemic aromatic plant to Kalakad Mundanthurai Tiger Reserve Forest (KMTR), in South India. Orthosiphon comosus Wight ex Benth. is an erect shrub, 3 - 5 feet high. The main objective of the current study was carried out to identify the bioactive chemical constituents present in the ethanol fraction of shade dried leaf sample of Orthosiphon comosus. In GC/MS analysis fifteen constituents were identified. GC/MS chromatogram of O. comosus ethanol extract gives two prominent peaks with retention time 31.32 and 32.43 indicating the presence of two bioactive compounds such as 9,19-Cyclolanost-24-en-ol, acetate (36)- and 13.27-Cyclounon-3-one. The identified compounds were reported as antioxidant, antimicrobial and anti-tumour properties. Identification of various bioactive compounds in the extract of O. comosus dried leaves warrants further biological and pharmacological studies.

Key words : Bioactive compounds, chromatogram, ethanol extract, pharmacological activity.

INTRODUCTION

Medicinal plants have played a key role in world health. They are distributed worldwide, but they are most abundant in tropical countries. It is estimated that about 25% of all modern medicines are directly or indirectly derived from higher plants (Calixto, 2000). Herbal medicine or herbalism is the use of herbs or herbal products for their therapeutic or medicinal value. Herbal drugs may come from any part of the plant, but are most commonly made from leaves, roots, bark seeds and flowers. They are eaten, swallowed, drunk, inhaled, or applied to the skin (Bisset, 1994). To prove the consistent composition of herbal preparations, adequate analytical methods have to be applied including thin-layer chromatography (TLC), high-performance TLC (HPTLC) and gas chromatography (GC) (Bauer, 1998). Various advanced methods such as chromatographic, spectrophotometric and combination of these methods, electrophoresis, polarography and the use of molecular biomarkers in fingerprints are currently employed in standardization of herbal drugs (Bhutani, 2003; Mosihuzzaman and Choudhary, 2008; Seitz et al, 1991; O’Shae, 1995; Patel et al, 2006). Orthosiphon is a genus of plants native to Southeast Asia and some parts of tropical Australia. This plant has been used in traditional medicine for centuries to improve general health, treatment of kidney diseases, bladder inflammation, gout, diabetes, back pain, dyspepsia, arthralgia, headache, fatigue and dysuria (Adam et al, 2009). Orthosiphon comosus Wight ex Benth. (Lamiaceae), a medium sized shrub, endemic in the Tamil Nadu, India, is found in Kalakad Mundanthurai Tiger Reserve Forest (KMTR) (Maridoss et al, 2008) at medium altitudes. The selected species for investigation, O. comosus has very little previous record of use in traditional medicine. O. comosus is commonly known as “pavazha thulasi” in Tamil and The main objectives of the present investigation is to study the phytoconstituents of ethanolic extract of Orthosiphon comosus by GC –MS.
anticarcinogenic, anti-inflammatory, and antibacterial properties (Swamy and Sinniah, 2015).

These biological activities of compounds present in *Orthosiphon comosus* leaf extract support the medicinal application of the plant. The study revealed major bioactive compounds present in ethanol extract. Identification of these compounds in the plant serves as the basis in determining the possible health benefits of the plant leading to further biologic and pharmacologic studies.

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