

PUBLICATIONS

CHEMICAL COMPOSITION AND ANTIBACTERIAL ACTIVITIES OF *Salvia ceratophylla* L. FROM EASTERN PART OF TURKIYE

G. Gülsoy Toplan, M. Kürkçüoğlu², G. İşcan², A. Civaş³, K.H.C. Başer⁴

¹Department of Pharmacognosy, Faculty of Pharmacy, University of Health Sciences, İstanbul, Turkey.

²Department of Pharmacognosy, Faculty of Pharmacy, Anadolu University, Eskişehir, Turkey.

³Department of Pharmacy and Pharmaceutical Services, Tuzluca Vocational School, Iğdır University, Iğdır, Turkey.

⁴Department of Pharmacognosy, Faculty of Pharmacy, Near East University, Lefkoşa, North Cyprus.

Salvia is one of the largest valuable genera in the family Lamiaceae, generally referred to as 'sage'. Its species are utilized for various purposes, including the treatment of colds, wounds, digestive and menstrual issues, skin infections, memory enhancement, and culinary flavoring. Moreover, the economic importance is increasing as certain species are farmed for use in the medicinal, food, and cosmetic sectors. Consequently, the species within this genus have garnered the interest of researchers, resulting in a significant rise in investigations over the past few decades.

In this work, the essential oil composition and antimicrobial activity of *Salvia ceratophylla* collected from Ağrı, Eastern Anatolia, were investigated and evaluated for the first time. The essential oil content of aerial parts was evaluated using GC-FID and GC/MS. The antibacterial properties of several extracts obtained from plant, including *n*-hexane, chloroform, and methanol extracts, respectively and also infusion, were assessed by measuring their minimum inhibitory concentration (MIC) values.

As a result, 36 compounds were identified in the oil. The major components were determined as hexahydrofarnesyl acetone (8.8%), camphor (8.4%), caryophyllene (7.8%), caryophyllene oxide (5.7%), germacrene D (5.5%), carvacrol (4.9%), and spathulenol (4.1%). In terms of antimicrobial activity, the extracts had "moderate to weak" inhibitory effects on 6 bacteria and 7 yeasts at concentrations ranging from 125 to 2000 µg/mL for the bacteria and 250 to 2000 µg/mL for the yeasts. Among the extracts, *n*-hexane and chloroform showed moderate antimicrobial activities while other extracts had weak activity against both microorganisms.

In our study, the major compounds of essential oil showed differences comparing the previous studies on *S. ceratophylla* collected from different parts of Türkiye. Our future research will specifically focus on the pharmacological potential of the extracts and essential oil, along with their phytochemical characterisation.