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IN VITRO ANTIMICROBIAL ACTIVITY SCREENING OF *Salvia fruticosa* AGAINST WIDE RANGE OF MICROORGANISMS, MULTI DRUG RESISTANT (MDR) BACTERIA AND INVESTIGATION OF BIOCHEMICAL COMPOSITIONKerem Canli¹, Mustafa Eray Bozyel², Ali Yetgin³, Ilgaz Akata⁴, Ergin Murat Altuner⁵¹Department of Biology, Faculty of Science, Dokuz Eylül University, Izmir, Turkey²Department of Biology, Faculty of Arts and Science, Canakkale Onsekiz Mart University, Canakkale, Turkey³Department of Biotechnology, Institute of Engineering and Science, Izmir Institute of Technology, Izmir, Turkey⁴Department of Biology, Faculty of Science, Ankara University, Ankara, Turkey⁵Department of Biology, Faculty of Science and Arts, Kastamonu University, Kastamonu, Turkey
email:ergin.murat.altuner@gmail.com

Objective / Purpose: The long-term use of broad spectrum antibiotics has led to the development of resistance, so development of novel component use to treatment of infectious diseases caused by bacteria, fungi, parasites and viruses. In both traditional and current approaches, natural products have been the foundation of health care in the world since ancient times. In this study, disk diffusion antimicrobial activity test for *Salvia fruticosa* Mill. was performed against 22 bacteria and 1 yeast. Also, biochemical composition of extract was investigated.

Material and Methods: A wide range of Gram positive and Gram negative microorganisms and multi drug resistant bacteria were selected to test the antimicrobial effect of *S. fruticosa*. Most of these strains are standard, some of the strains are food isolated and the rest are clinic isolated. These microbial species are *Bacillus subtilis* DSMZ 1971, *Enterococcus faecalis* ATCC 29212, *Listeria monocytogenes* ATCC 7644, *Staphylococcus aureus* ATCC 25923, *Staphylococcus epidermidis* DSMZ 20044, *Enterobacter aerogenes* ATCC 13048, *Escherichia coli* ATCC 25922, *Pseudomonas aeruginosa* DSMZ 50071, *Pseudomonas fluorescens* P1, *Salmonella enteritidis* ATCC 13075, *Salmonella typhimurium* SL1344, *Candida albicans* DSMZ 1386, *Enterococcus durans*, *Enterococcus faecium*, *Listeria innocua*, *Klebsiella pneumoniae*, *Salmonella infantis*, *Salmonella kentucky*, *Staphylococcus aureus* (CI) and *Escherichia coli* (CI), *Acinetobacter baumannii* (MDR), *Proteus vulgaris* (MDR) and *Streptococcus pneumoniae* (MDR). 3.35 and 13.4 mg samples were prepared by using ethanol extraction method. Besides, chemical composition of this sample was determined by Gas Chromatography-Mass Spectrometry and several libraries were used for GC/MS analysis.

Results: *S. fruticosa* has several major chemical component and antimicrobial potential against all studied species except *E. coli*, *S. infantis*, *S. kentucky* and *S. typhimurium*. Five of them have high susceptibility (15-25 mm); eight of them have moderate susceptibility (14-10 mm) and three of them have low susceptibility (9-7 mm). *S. fruticosa* shows antimicrobial activity against all tested MDR bacteria.

Conclusion / Discussion: Our study clearly presents that *S. fruticosa* should have possible medicinal uses, especially against MDR bacteria. However, further researches are needed in order to analyze the active substances and their activity mechanisms in details.

Keywords: *Salvia fruticosa*, antimicrobial activity, disk diffusion method, ethanol extract, GC/MS, MDR.

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