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IN VITRO ANTIMICROBIAL ACTIVITY SCREENING OF *Lavandula stoechas* AGAINST WIDE RANGE OF MICROORGANISMS, MULTI DRUG RESISTANT (MDR) BACTERIA AND INVESTIGATION OF BIOCHEMICAL COMPOSITION

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Objective / Purpose: World Health Organization (WHO) has predicted increasing antimicrobial resistance as a major threat for the public health for the 21st century. In order to prevent spreading of antibiotic resistant infections, scientists have been conducting intensive researches to determine new antimicrobial agents. One way to prevent antibiotic resistance of microorganisms is by using new compounds that are not based on existing antimicrobial agents. To look for a solution to this problem, the disk diffusion antimicrobial activity test of *Lavandula stoechas* 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 *L. stoechas*. 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). 5.85, 23.4 and 35.1 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: *L. stoechas* has several chemical component. It has a high antimicrobial potential against all studied species except *E. coli* and *K. pneumoniae*. Three of them have high susceptibility (15-25 mm); seven of them have moderate susceptibility (14-10 mm) and eleven of them have low susceptibility (9-7 mm). *L. stoechas* shows antimicrobial activity against all tested MDR bacteria.

Conclusion / Discussion: Our study clearly presents that *L. stoechas* 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: *Lavandula stoechas*, antimicrobial activity, disk diffusion method, ethanol extract, GC/MS, MDR.

Acknowledgements: The authors would like to thank to Assist. Prof. Gorkem DULGER for their support by supplying clinic isolated and multi drug resistant microorganisms during the study.