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Antimicrobial activity and biochemical analysis of *Arctium lappa* leaves

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Medical herbs have many bioactive components and they are used in microbial treatments since ancient times. *Arctium lappa* is one of them and it is important for folkloric medicine in Turkey. It is called greater burdock and it is a native species in Eurasia. The antimicrobial activity of *A. lappa* leaves were investigated against 17 bacteria and 1 fungi by using disk diffusion method. These microbial strains include Bacillus, Enterobacter, Enterococcus, Escherichia, Klebsiella, Listeria, Pseudomonas, Salmonella, Staphylococcus and Candida genera. Twelve of them are standard species and they are important for exact determination of antimicrobial potential. 3.35, 6.40 and 13.39 mg samples were prepared by using ethanol extraction method. Bioactive composition of this sample was also determined by Gas Chromatography-Mass Spectroscopy (GC-MS) and National Institute of Standards and Technology (NIST) library was used for mass spectra analysis. The results were presented that *A. lappa* has antimicrobial activity against seven tested species. Two of them are highly susceptible (more than 15 mm); three of them are moderately susceptible (14-10 mm) and two of them are low susceptible (9-7 mm). *C. albicans*, *E. aerogenes*, *E. coli* and *S. infantis* have resistance against ethanol extract of *A. lappa* extract. Several active metabolites were identified, but some composition of this sample didn't match with library. Unknown molecules should be analyzed by NMR spectra for identification and 3D structure determination.

Keywords: Antimicrobial activity, Arctium lappa, bioactive composition, ethanol extract, medicinal plant