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ANTIMICROBIAL ACTIVITY AND CHEMICAL COMPOSITION SCREENING OF *Epilobium montanum* ROOTS

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Objective / Purpose: In several places of the world, there are increasing researches for determination of the unknown activity of medicinal plants. In consequence of the expressly enhancement in infections at developing countries, new explorations for new antimicrobial agents is required. Although extracts of several *Epilobium* species have been investigated as potential antimicrobial, antifungal and antiviral agents, as far as the current literature is concerned *Epilobium montanum* related antimicrobial research doesn't exist, therefore roots of this medical plant was applied against 17 bacteria and 1 fungi by using disk diffusion method.

Material and Methods: A wide range of Gram positive and Gram negative bacteria and yeast were selected to test the antimicrobial effect of *E. montanum*. These microbial species *Bacillus subtilis* ATCC 6633, *Candida albicans* ATCC 10231, *Enterobacter aerogenes* ATCC 13048, *Enterococcus durans*, *Enterococcus faecalis* ATCC 29212, *Enterococcus faecium*, *Escherichia coli* ATCC 25922, *Escherichia coli* CFAI, *Klebsiella pneumoniae*, *Listeria monocytogenes* ATCC 7644, *Salmonella enteritidis* ATCC 13075, *Salmonella infantis*, *Salmonella kentucky*, *Salmonella typhimurium* SL 1344, *Staphylococcus aureus* ATCC 25923, *Staphylococcus carnosus* MC1.B, *Staphylococcus epidermidis* DSMZ 20044 and *Streptococcus agalactiae* DSMZ 6784. Twelve of them are standard species and they are important for exact determination of antimicrobial potential. 2.75 and 9.17 mg samples were prepared by using ethanol extraction method. Besides, chemical composition of this sample was determined by Gas Chromatography-Mass Spectroscopy and National Institute of Standards and Technology (NIST) library was used for mass spectra analysis.

Results: The results were presented that *E. montanum* has antimicrobial activity against all tested microbial species except *E. coli*. Six of them are high susceptible (15-25 mm); five of them moderate susceptible (14-10 mm) and six of them are low susceptible (9-7 mm). Several active metabolites were identified, but some composition of this sample is not matched with the library.

Conclusion / Discussion: Our study clearly presents that *E. montanum* roots should have a possible medicinal uses. However, further researches are needed in order to analyse the active substances and their activity mechanisms in details. *E. montanum* contains unknown molecules and this molecules should be analyzed by NMR spectra for their 3D structure determination and identification.

Keywords: *Epilobium montanum*, medicinal plant, antimicrobial activity, disk diffusion method, ethanol extract.