Antimicrobial activity of the essential oils of Ziziphora clinopodioides Lam. from Armenia

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The aim of this study was to analyze the chemical composition of essential oils from Z. clinopodioides (Lamiaceae) collected in Armenia and to test their biological activities. The essential oils were obtained by steam distillation in a Clevenger-type- apparatus, a HP GC-MS setup was used to determine their chemical composition. The 34 names of different substances, generally terpenoids (monoterpenes) have been identified in the essential oil of Z. clinopodioides. The main component was pulegone (®-5- Methyl- 2-(1- methylethylidine) cyclohexanone) which is used in flavoring agents, perfumery, and in aromatherapy. The concentration reached 42.1%. The concentrations of other components were 9.7% (isomenthone) and lower -2.4% (Menthone); 8.22% (1.8-Cineol); 7.35 % (Piperitenone); 5.9 % (D- Neomenthol); 3.9% (DL-Menthol); 3.56 %)Sabinene). According to the agar diffusion method the essential oil of Z. clinopodioides has also antimicrobial activity against Gram-positive, Gram-negative bacteria (including ampicillin-resistant E.coli dhpα-pUC18) and fungi. The highest antibacterial activity was established against St. aureus MDC 5233 (Microbial Depository Center, Armbiotechnology Scientific and Production Center, Armenia) (Laboratory control strain) (the minimal inhibitory concentration (MIC) was 3.125 µl/mL. The highest antifungal activity was established against Candida guillermondii WDCM with MIC value of 6.25 µl/mL. The obtained data indicate that essential oils can be useful natural agents for cosmetic applications and food dietary supplements. This study was done in the flame of Basic research support from State Committee on Science, Ministry of Education and Science of Armenia.