

Chemical Composition and Antimicrobial Activity of the Essential Oil of *Mentha piperita* Endemic in Khorasan-Iran

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Abstract : The aim of this study was to determine the composition and antimicrobial effect of *Mentha piperita* essential oil in "in-vitro" condition. The chemical composition of the essential oil obtained by hydro-distillation was examined by GC/MS and the antimicrobial effect was studied on the growth of seven microbial species including *Bacillus cereus*, *Pseudomonas aeruginosa* and *Proteus vulgaris* using micro-dilution method. The minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) were determined. Chemical composition analysis identified a total of 28 compounds in which the main components were menthol (32%), mentone (13.4), menthyl acetate (12%), 1,8-cineole (8.2%) and neomenthol (4%) representing 69.6 % of the total oil. Other separated components accounted for less than 30.4% of the oil. Results of antimicrobial analysis showed that the MIC values for *Bacillus cereus*, *Pseudomonas aeruginosa* and *Proteus vulgaris* was respectively 50, 200 and 100 µg/ml and the MBC was determined at 200, 400 and 200 µg/ml respectively. The results of the present study indicated that *Mentha piperita* essential oil had significant antimicrobial activity.

Keywords : antimicrobial activity, essential oil composition, *Mentha piperita*

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