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Chemical and antimicrobial studies of Juniperus communis subsp. hemisphaerica and Juniperus oblonga essential oils

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Abstract

The essential oils obtained from male and female leaves and fruits of Juniperus communis subsp. hemisphaerica as well as male and female leaves of Juniperus oblonga growing in Iran, were analyzed by gas chromatography (GC) and gas chromatography-mass spectrometry (GC-MS), and screened for bacteriostatic and fungistatic activities. Analysis of the oil of leaves (male and female shrubs) and fruits of J. communis subsp. hemisphaerica identified ٢١, ٢١ and ٢٠ components respectively. J. oblonga leaves (male and female trees) and fruits oils analysis showed ١٩, ٢٠ and ١٤ compounds respectively. The GC-MS analysis of these oils indicated that the composition of the oils were generally similar. The main components of the oils of fruits and leaves from both male and female plants of J. communis subsp. hemisphaerica and J. oblonga were α-pinene and sabinene respectively. The antimicrobial activity of essential oils of fruits and leaves of these plants were also investigated. They had a wide range of activity from no antimicrobial activity to some antimicrobial activity against various tested microbial strains (Bacillus subtilis, Staphylococcus aureus, Escherichia coli, Pseudomonas aeruginosa and Candida albicans). The defatted ethanol extract of the fruits and leaves of male and female plants were examined for the presence of alkaloids, flavonoids, saponins and tannins. The amounts of non-volatile compounds were quite variable in different parts ofthe plants.

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Author keywords

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