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## Pharmaceutical Biology

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Antioxidant activity of the essential oils of different parts of *Juniperus communis* subsp. *hemisphaerica* and *Juniperus oblonga*Emami, S.A.<sup>a</sup>, Javadi, B.<sup>a</sup>, Hassanzadeh, M.K.<sup>bc</sup><sup>a</sup> Department of Pharmacognosy, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran<sup>b</sup> Department of Medicinal Chemistry, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran<sup>c</sup> School of Pharmacy, Mashhad University of Medical Sciences, Mashhad 91775-1365, Iran

## Abstract

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The essential oils of different parts of *Juniperus communis* subsp. *hemisphaerica* (Prest) Nyman (Cupressaceae) and *Juniperus oblonga* M. B. were examined for their potential radical scavenging activity. The compositions of the essential oils of these plants were studied qualitatively and quantitatively by GC and GC-MS. The main components of the essential oils as well as positive controls were subjected to antioxidant testing. A rapid evaluation for antioxidants, using two TLC screening methods, showed that all tested oils and their main components have antioxidant activity. The abilities of the volatile oils to act as nonspecific donors for hydrogen atoms for electron were checked in the diphenylpicrylhydrazyl (DPPH) assay. In the DPPH assay, the strongest effect among the essential oils was measured for the oil of leaves of male *J. communis* subsp. *hemisphaerica* at a concentration of 4  $\mu$ L/mL (24.0%) In the deoxyribose degradation assay, the essential oils, pure components, and positive controls were tested at different concentrations. Most of the tested compounds showed some antioxidant effects. The fruit oil of *J. oblonga* has the strongest effect among the tested volatile oils. The deoxyribose assay was modified in three different ways to assess whether the oils exhibited site-specific effects. The results of the current study, which demonstrate the DPPH scavenging activity of the essential oils of the leaves of male *J. communis* subsp. *hemisphaerica* and the OH radical scavenging effects of the fruit oil of *J. oblonga* suggest the use of these two essential oils in very low concentrations for preserving food materials. © 2007 Informa Healthcare USA, Inc.

## Reaxys Database Information

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## Author keywords

Antioxidant activity; Deoxyribose assay; DPPH assay; Essential oil; *J. communis* subsp. *hemisphaerica*; *J. oblonga*; TLC screening

## Indexed keywords

EMTREE drug terms: 1,1 diphenyl 2 picrylhydrazyl; deoxyribose; essential oil; hydrogen; *Juniperus communis* extract; *Juniperus oblonga* extract; plant extract; scavenger; unclassified drugEMTREE medical terms: antioxidant activity; article; concentration (parameters); controlled study; drug synthesis; electron; female; food preservation; gas chromatography; *Juniperus*; male; mass spectrometry; nonhumanSpecies Index: Cupressaceae; *Juniperus communis* subsp. *hemisphaerica*; *Juniperus oblonga*

Chemicals and CAS Registry Numbers: 1,1 diphenyl 2 picrylhydrazyl, 1898-66-4; deoxyribose, 533-67-5; hydrogen, 12385-13-6, 1333-74-0

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