

NPC Natural Product Communications

Chemical Composition, Antimicrobial and Anti-inflammatory Activity of Algerian *Juniperus phoenicea* Essential Oils

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**Abstract:**

The essential oils (EOs) obtained by steam distillation from the leaves and the berries of *Juniperus phoenicea* L., harvested in northwest of Algeria were analyzed and their antimicrobial and anti-inflammatory activities were assessed. 63, 46 and 78 volatile compounds were identified by GC-FID and GC-MS from fresh leaves, dried leaves and berries representing 98.1%, 98.3% and 96.4% of the total oil, respectively. The fresh and dried leaves oils were mainly composed of  $\beta$ -phellandrene (43.9% / 44.9%),  $\alpha$ -pinene (25.1% / 20.3%), myrcene (8.5% / 8.2%),  $\alpha$ -phellandrene (4.7% / 4.5%) p-cymene (2.7% - 3.0%) and limonene (2.3% - 2.5%) whereas, the berries oil was mainly composed of  $\alpha$ -pinene (43.7%), p-cymene (5.8%),  $\beta$ -phellandrene (4.6%),  $\alpha$ -terpineol (4.3%) and  $\alpha$ -campholenal (4.0%). The study of the antimicrobial activity showed that the 3 EOs were effective only on *B. cereus* ATCC 10876 and *C. albicans* ATCC 10231. No signs of acute toxicity have been noted in mice even at the highest dose tested (5000 mg/kg p.o). The fresh leaves, dried leaves and berries oils reduced the carrageenan-induced paw edema in mice by 16.8%, 15.2% and 6.4%, respectively, after 6 hours at a dose of 400 mg/kg p.o.

**Keywords:** *Juniperus phoenicea*, Essential oil, Chemical composition, Antimicrobial activity, Acute toxicity, Anti-inflammatory activity.