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NOTE

Terpenoids from Dried Fruits of *Juniperus polycarpous* from Lowest Part of the Mountainous in Golestan of Iran

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In this paper, oil from representative samples of population as well as from individual samples of *Juniperus polycarpos* were studied. The oils consisted mainly of monoterpene hydrocarbons. Analysis of essentials oil from dried fruits was detected after disitillation by GC-MS. The results indicated that effeciacious materials of this plant were different, significantly. In *J. polycarpos* 30 essential oils were detected that its highest values were terpine-4-ol, limonene, sabinene, γ-terpinene and δ-cadinene.

Key Words: *Juniperus polycarpos*, Essential oils, Terpine-4-ol, Limonene, Sabinene, Pinene.

Juniperus polycarpos is an evergreen tree indigenous to the mountains of Central Asia and belongs to the family *Cupressaceae*, with about 70 species distributed over the Northern Hemisphere. Previously, from the genus *Juniperus* some terpenoids[1-7], neolignans[8] and flavonoids[9,10] have been isolated. The seed decoction of *J. polycarpus* is used as folk medicine for kidney diseases and as a diuretic and abortive in Uzbekistan[11,12]. Additionally, the isolation and antiinflammatory activity[13] of some diterpenoids of *J. polycarpus* and several studies about the essential oil of *J. seravschanica* have been published[14,15]. In the present study, the isolation and structure elucidation of two new sesquiterpenoids, four new diterpenoids and nine known compounds is described. Some of the isolated compounds showed moderate antimalarial activity.

The major equipments used were clevenger; GC/MS (Varian-3400), other chemicals were of analytical grade.

Juniperus polycarpus was collected from lowest part of the mountainous in Golestan Chaharbagh of Iran during May-June 2006.

Oil extraction and analysis: The dry powder of plant materials were steam distilled for 1.5 h in full glass apparatus. The oils were isolated using a clevenger-type apparatus. The extraction was carried out for 6-8 h in 500 round bottom flask. The GC/MS unit consisted of Varian-3400 gas chromatograph coupled to a Saturn II ion trap detector. The column was same as of the GC under the same conditions stated above. The constituents were identified by comparison of their mass spectra

with those in the computer library and with authentic compounds. The identifications were confirmed by comparison of their retention indices with those of authentic compounds or with literature data.

Chemical composition of the essential oils: The results obtained by GC-MS analysis of the essential oil of *Juniperus polycarpos* is presented in Table-1, respectively. Thirty compounds were identified in the essential oil of *Juniperus polycarpos*, respectively. As a result of GC-MS analyses, *Juniperus polycarpos* contained terpine-4-ol (17.72 %), limonene (9.53 %), sabinene (8.58 %), γ-terpinene (8.10 %) and δ-cadinene (7.13 %), were the major compounds of *Juniperus polycarpos* oil.

TABLE-1
CHEMICAL COMPOSITION OF *Juniperus polycarpus* ESSENTIAL OIL

Compd. No.	Compound name	RI	%
1	α-Thujene	922	1.29
2	α-Pinene	931	1.69
3	Sabinene	971	8.58
4	α-Terpinene	1010	4.82
5	ρ-cymene	1013	3.21
6	Limonene	1025	9.53
7	γ-terpinene	1047	8.10
8	*cis*-Sabinene hydrate	1051	0.97
9	α-terpinolene	1077	2.08
10	Linalool	1089	2.87
11	ρ-Menth-2-en-1-ol	1106	1.45
12	Terpine-4-ol	1158	17.72
13	2,3-Dimethyl cyclohexanol	1176	1.20
14	Menthyl	1214	1.46
15	γ-Elemene	1382	1.92
16	β-Caryophyllene	1408	1.33
17	α-Humulene	1442	0.95
18	Germacrene-D	1467	1.89
19	Epi-bicycloses quiphellandrene	1489	1.07
20	α-Muurolene	1494	1.45
21	γ-Cadinene	1508	3.05
22	δ-Cadinene	1516	7.13
23	Elemol	1533	3.15
24	Germacrene B	1554	0.70
25	Caryophyllene oxide	1576	1.03
26	Oplopene	1582	3.82
27	Naphthalene	1607	0.89
28	α-Gurgunene	1609	1.33
29	T-Cadinol	1616	2.14
30	T-Muurolol	1645	3.16

In this study, it has been tried to compare quantitative and qualitative characteristics of essential oil and effecicius materials of their femal cones together and their antibacterial properties on *E. coli*, *Staphilococos*, *Shigella*, *Micrococcos Pesodomonas*, *Serashia* and *Crlebsella*.

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