

Satureja sahendica Bornm

Antioxidant activity and Chemical compositions of essential oil of aerial parts of *Satureja sahendica* Bornm

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Objective: *Satureja* (F: Labiatea) species are present in the worldwide, 12 *Satureja* species grow in Iran that 8 species are endemic. These plants are famous due to use as a culinary and medicinal plants. **Methodes:** In this research the aerial parts of *Satureja sahendica* were collected from east Azarbayegan province, Osku at E :46 10 3.6 , N: 37 43 52.7 and 2048 m heigh. The air dried parts of plants were kept at 2°C up to used for GC analysis. The plant materials seprated to two different parts, inflorescence (S1), Leaf and stem(S2). 30 – 40 gr of each samples were subjected to hydro – distillation for 4 h using a clevenger – type apparatus to produce essential oil. Hydrodistillation was repeated thrice for each sample and average was calculated. **Results:** The essential oil was found to be yellow liquid and was obtained in yields of 1.66 ± 0.19 for S1 and 1.5 ± 0.12 for S2 based on v/w. 28 compounds were identified in the oil of S1 that thymol (32.5 %), γ - terpinen (29.33 %) and *p*- cymene (23.48 %) are main constituents and 23 compounds were characterized in the oil of S2 that main constituents were *p*- cymene (44.88 %), thymol (28.22%) and γ - terpinen (10.07 %). The antioxidant activities of S1 and S2 samples were assessed by DPPH assay and RC₅₀ values were 7.38×10^{-2} and 7.15×10^{-2} mg/ml, respectively. **Conclusion:** Investigations showed that the essential oil of aerial parts of *S. sahendica* had a high antioxidant activity and due to high amount of thymol and *P*-cymene and other terpenoids in the oil , it can be used as a culinary and medicinal plant and perfume industries.

Key words: *Satureja sahendica*, Essential oil, Antioxidant, *p*- Cymene, Thymol , γ - Terpinen

		Labiatea		<i>Satureja</i>			
				<i>S. sahendica</i>			
				E: 46 10 3.6 N : 37 43 52.7			
		S2 ()		S1 ()			
		S1		S2		S1	
		/ % ± / v/w		/ % ± / v/w		/ % ± / v/w	
		(/ %)		(/ %)		(/ %)	
DPPH		(/ %)		(/ %)		(/ %)	
		$7/15 \times 10^{-2}$ mg/ml		$7/83 \times 10^{-2}$ mg/ml		S2 S1 RC ₅₀	

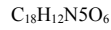
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S. sahendica

(DPPH)

DPPH
(DPPH)



S. sahendica

DPPH

E: 46 10 3.6 N : 37 43 52.7

$1/9 \times 10^{-3}$, $3/9 \times 10^{-3}$, $7/8 \times 10^{-3}$, $1/56 \times 10^{-2}$, $3/12 \times 10^{-2}$

S2 S1

DPPH

Exel

DPPH

(DPPH) RC₅₀

(GC -MS)

(GC -MS)

(RI)

S2 S1

NBS54K NIST

S. sahendica

GC -MS

GC-17A -Ver.3

() S1

/

DB -5

) S2

% / ± / v/w

% / ± / v/w (

(QP 5050)

(/ %)

S2

S2 S1

(/ %)

(/ %)

DPPH

S1

/ .

/

RC₅₀

S2 S1

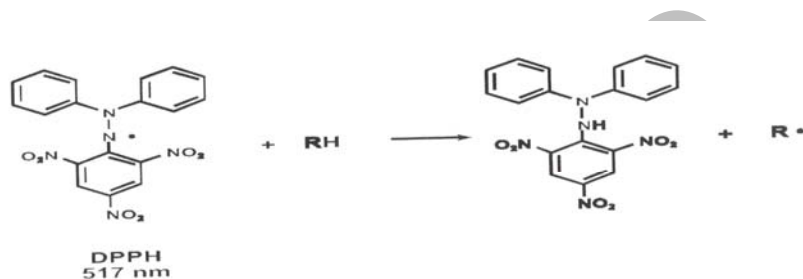
S2

(/ %)

S1

(/ %)

(/ %)



() S2

() S1

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		RI	S1	S2
1	Alpha - Thujen	930	0.8	0.82
2	Alpha - Pinene	939	0.41	0.5
3	Camphene	954	0	0.13
4	Beta - Pinene	979	0.15	0.14
5	Myrcene	991	1.87	1.57
6	Alpha - Phellandrene	1003	0.22	0.11
7	Alpha - Terpinene	1017	3.3	0.91
8	Para - Cymene	1025	23.48	44.88
9	Limonene	1029	0.43	0.52
10	Delta - Carene	1031	0.19	0
11	Cis - Ocimene	1037	0.32	0
12	Beta - Ocimene	1050	0.1	0.32
13	Gamma - Terpinene	1060	29.33	10.7
14	Para- Cymenene	1091	0	0.27
15	Linalool	1097	0.28	0.54
16	Sabinene hydrate	1098	0	0.24
17	Borneol	1169	0.28	0.63
18	Terpinene-4-ol	1177	0.66	0.84
19	Para-Cymene-8-ol	1183	0.16	0.84
20	Alpha- Terpineol	1189	0.09	0
21	Thymol	1290	32.57	28.22
22	Carvacrol	1299	0.94	1.69
23	Thymol Acetate	1352	0.11	0
24	Beta- Caryophyllene	1419	1.01	0.53
25	Gamma - Elemene	1437	0.23	0
26	Beta- Pharnesene	1457	0.25	1.16
27	Beta- Chamigrene	1478	0.14	0
28	Germacrene D	1485	0.13	0
29	Gamma- Cadinene	1514	0.1	0
30	Delta- Cadinene	1523	0.16	0
31	Spathulenol	1578	0.65	1.16
32	Caryophyllene oxide	1583	0.24	66

RC₅₀ :

3.07×10^{-3}	S2 7.15×10^{-2}	S1 7.83×10^{-2}	RC ₅₀
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S1				S1				S2
S1		RC50	S2					S1
/ ×	S2	/ ×		/				/
(/ ×)				/				/
	<i>S. sahendica</i>			/				/
		<i>Satureja</i>		/				/
	<i>S. montana</i>							S1
								% /
()				S2				% /
	<i>S. sahendica</i>			S2	S1			
	<i>S. sahendica</i>	<i>S. cilicia</i>						
<i>S. paradoxa</i>	<i>S. abyssinica</i>	()		S2				S1
	()			-				
<i>S. sahendica</i>								S2
								S1
								<i>S. sahendica</i>
								<i>S. bachtiarica</i> <i>S. spicigera</i>
								<i>S. cuneifolia</i>
								p
								()

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