

**Table 1** Toxicity of some volatile oils.

Volatile oil	LD 50 (g)
Sage	182
Fennel	218
Peppermint	311
Rosemary	462
Caraway	468
Chamomile	599
Lavender	633

**Table 2** Identified terpenes in *Salvia officinalis* L. by GC-MS and their concentration in area percentage.

Compound	Relative retention	Leaf	Calyx-leaf	Petal
1 $\alpha$ -pinene	0.52	10.9	2.08	4.57
2 camphene	0.56	0.22	0.64	0.55
3 $\beta$ -pinene	0.61	4.12	14.1	24.4
3 myrcene	0.63	0.31	0.58	0.62
4 limonen	0.70	0.20	0.38	0.53
6 eucalyptol	0.74	5.29	13.9	4.61
7 linalool	0.96	0.17	0.08	0.11
8 $\alpha$ -thujon	1.00	15.5	18.1	5.34
8 $\beta$ - thujon	1.02	1.42	1.76	0.55
9 isoborneol	1.11	0.22	0.21	trace
10 borneol	1.15	1.67	33.8	1.13
11 $\alpha$ -terpineol	1.17	0.09	0.24	0.16
11 linalyl acetate	1.21	0.07	0.04	-
11 bornyl acetate	1.31	0.25	0.12	-
12 $\beta$ -caryophyllene	1.50	13.0	6.05	3.75
13 $\alpha$ -humulene	1.57	22.9	9.57	7.55
14 caryophyllenol	1.92	22.7	24.7	19.0
15 unknown	1.93	0.46	0.05	-
16 unknown	1.97	1.32	0.13	0.23

**Table 3** Fatty oil composition of sage leaves obtained by different extractions.

Samples	Parameters of extraction			Components of fatty oil (%)				
	P (bar)	T (°C)	Solvent	C16:0 Palmitic acid	C18:0 Stearic acid	C18:1 Oleic acid	C18:2 Linolic acid	C18:3 Linolenic acid
<i>S. officinalis</i>								
SFE	200	35	CO <sub>2</sub>	9.0	3.4	8.3	22.5	8.1
Soxhlet		69	hexane	6.2	1.2	9.0	5.0	19.0
<i>S. sclarea</i>								
Pressed				7.0	17.0	20.0	52.0	8.0
SFE	200	35	CO <sub>2</sub>	8.0	17.0	7.4	27.0	2.0
Soxhlet		69	hexane	8.0	trace	17.0	7.4	27.0

**Table 4** Biologically active organic agents of *Salvia* species in % (g/100 g dry matter) by Hungarian Pharmacopoeia (Ph. Hg. VII.).

	Tannin content	Flavonoid content	Polyphenol content
<i>Salvia officinalis</i>			
Leaf	8.76	1.20	11.92
Flowering shoot	2.29	0.52	8.21
Calyx-leaf	5.91	0.79	10.25
<i>Salvia sclarea</i>			
Leaf	5.42	3.42	8.10
Flowering shoot	2.16	2.25	6.70
Calyx-leaf	1.56	0.92	2.36

**Table 5** Biologically active organic agents in aqueous extract of sages leaves in % (g/100 ml water) determined by Hungarian Pharmacopoeia (Ph. Hg. VII.).

	Tannin content	Flavonoid content	Polyphenol content
<i>Salvia officinalis</i>	0.064	0.09	1.270
<i>Salvia sclarea</i>	0.0052	0.02	0.079

**Table 6** Tannin content of ethanolic (20-, 40-, 70%) *Salvia* extracts.

Crude drug (g)	Solvent for extraction	Tannin content % (Ph.Hg.VII)
<i>Salvia officinalis</i> L.	20% ethanol	0.72
	40% ethanol	0.69
	70% ethanol	0.61
<i>Salvia sclarea</i> L.	20% ethanol	0.49
	40% ethanol	0.39
	70% ethanol	0.21

**Table 7** Element content (mg/kg) of *Salvia* samples  $\pm$  standard deviations.

Elements	<i>Salvia officinalis</i> L.			<i>Salvia sclarea</i> L.	
	Leaf	Calyx-leaf	Shoot	Flowering shoot	Calyx-leaf
Al	965.8 $\pm$ 26.6	86.9 $\pm$ 37.8	91.3 $\pm$ 31.5	111.0 $\pm$ 7.6	337.6 $\pm$ 7.3
As	1.70 $\pm$ 1.71	<dl	<dl	3.54 $\pm$ 0.25	<dl
B	36.95 $\pm$ 12.41	20.04 $\pm$ 8.546	14.26 $\pm$ 0.877	17.22 $\pm$ 0.43	34.74 $\pm$ 0.39
Ba	23.80 $\pm$ 10.49	14.83 $\pm$ 6.71	21.80 $\pm$ 3.10	36.18 $\pm$ 0.85	<dl
Ca	20334 $\pm$ 4364	8936 $\pm$ 3217	4130 $\pm$ 265	20573 $\pm$ 756	15276 $\pm$ 313
Cd	<dl	<dl	<dl	<dl	<dl
Co	0.107 $\pm$ 0.185	0.075 $\pm$ 0.008	<dl	<dl	0.459 $\pm$ 0.029
Cr	2.947 $\pm$ 1.260	0.452 $\pm$ 0.484	0.490 $\pm$ 0.692	5.22 $\pm$ 0.81	1.88 $\pm$ 0.29
Cu	8.003 $\pm$ 1.762	14.89 $\pm$ 12.45	6.205 $\pm$ 3.684	10.29 $\pm$ 0.76	11.52 $\pm$ 0.26
Fe	956.8 $\pm$ 140.1	97.15 $\pm$ 37.48	130.6 $\pm$ 80.91	129.0 $\pm$ 0.3	296.1 $\pm$ 6.6
Hg	<dl	<dl	<dl	<dl	<dl
K	23766 $\pm$ 7716	22899 $\pm$ 8179	24319 $\pm$ 2490	25528 $\pm$ 783	21737 $\pm$ 516
Li	<dl	<dl	<dl	<dl	< 0.1
Mg	6075 $\pm$ 826	2926 $\pm$ 1341	1423 $\pm$ 553	3187 $\pm$ 22	3793 $\pm$ 29
Mn	50.84 $\pm$ 2.70	26.63 $\pm$ 17.02	8.69 $\pm$ 2.02	31.87 $\pm$ 0.66	29.67 $\pm$ 0.25
Mo	1.10 $\pm$ 0.35	0.33 $\pm$ 0.39	0.43 $\pm$ 0.61	3.23 $\pm$ 1.55	1.41 $\pm$ 0.60
Na	94.03 $\pm$ 7.22	462.4 $\pm$ 79.8	127.9 $\pm$ 10.4	384.6 $\pm$ 7.7	20.16 $\pm$ 0.60
Ni	<dl	<dl	1.03 $\pm$ 1.45	1.03 $\pm$ 0.57	<dl
P	1960 $\pm$ 494.4	2524 $\pm$ 1089	2171 $\pm$ 814.6)	3190 $\pm$ 75	3043 $\pm$ 69
Pb	2.577 $\pm$ 4.463	<dl	<dl	<dl	<dl
S	2738 $\pm$ 593	1393 $\pm$ 446	543.9 $\pm$ 38.5	2493 $\pm$ 32	2930 $\pm$ 61
Ti	31.24 $\pm$ 4.87	3.74 $\pm$ 2.77	3.10 $\pm$ 0.75	2.78 $\pm$ 0.20	1.23 $\pm$ 0.11
V	0.845 $\pm$ 0.904	<dl	<dl	<dl	<dl
Zn	33.26 $\pm$ 14.89	34.85 $\pm$ 15.75	12.09 $\pm$ 7.22	24.44 $\pm$ 0.66	28.77 $\pm$ 0.27

<dl below detection limit

**Table 8** Element concentrations (mg/l) in aqueous extracts of *Salvia officinalis* (made by 5 g leaf in 100 ml water) and in sage oil (mg/kg).

Elements	Infusum	Essential oil
Al	3.26 $\pm$ 0.02	3.53 $\pm$ 0.08
As	0.192 $\pm$ 0.041	<dl
B	4.42 $\pm$ 0.02	23.86 $\pm$ 1.16
Ba	0.265 $\pm$ 0.001	0.382 $\pm$ 0.009
Ca	352.3 $\pm$ 3.6	76.43 $\pm$ 0.88
Co	<dl	0.011 $\pm$ 0.018
Cr	0.011 $\pm$ 0.002	0.008 $\pm$ 0.003
Cu	0.120 $\pm$ 0.003	0.152 $\pm$ 0.073
Fe	2.64 $\pm$ 0.02	0.840 $\pm$ 0.105
K	497.5 $\pm$ 4.7	4.21 $\pm$ 0.16
Li	<dl	<dl
Mg	187.3 $\pm$ 1.8	6.26 $\pm$ 3.79
Mn	0.772 $\pm$ 0.003	<dl
Mo	0.020 $\pm$ 0.011	16.54 $\pm$ 0.24
Na	26.51 $\pm$ 0.39	0.116 $\pm$ 0.019
Ni	<dl	<dl
P	45.48 $\pm$ 0.62	65.64 $\pm$ 1.19
Pb	0.188 $\pm$ 0.044	0.651 $\pm$ 0.102
S	67.90 $\pm$ 1.15	<dl
Ti	0.100 $\pm$ 0.001	<dl
Zn	0.524 $\pm$ 0.007	1.48 $\pm$ 0.18

<dl below detection limit

**Table 9** Antioxidant activity of aqueous solution of muscat sage measured by FRAP method

	Antioxidant activity ( $\mu\text{mol/l}$ )
0.5%	156.78 $\pm$ 1.22
1.0%	198.66 $\pm$ 1.20
1.5%	311.84 $\pm$ 3.03

**Table 10** Major compounds in volatile oil of coriander seed.

Sample	Parameters of extraction				Volatile oil content (%)	Volatile oil components (%)		
	P (bar)	T ( $^{\circ}\text{C}$ )	Solvent	Rate of extraction		Linalool	Geranyl-acetate	Linalyl acetate
1	250	35	CO <sub>2</sub>	15.3	80.0	70.0	7.0	0.3
2	250	35	CO <sub>2</sub>	45.8	21.5	29.8	3.5	0.1
3	300	35	CO <sub>2</sub>	31.4	15.0	41.0	5.1	4.5
4	300	35	CO <sub>2</sub>	31.9	17.3	35.3	1.0	0.4
5	300	35	CO <sub>2</sub>	83.1	2.25	33.0	3.3	trace
6	200	35	CO <sub>2</sub>	35.8	2.55	29.5	3.6	trace
7	200	25	fluid CO <sub>2</sub>	33.3	35.0	69.1	1.5	1.6
8	100	28	propane+ CO <sub>2</sub>	100	20.0	61.0	10.0	trace
9	80	28	propane+ CO <sub>2</sub>	100	25.0	64.0	4.0	trace
10	100	25	propane+ CO <sub>2</sub>	99.6	5.5	65.6	1.8	1.3
11	80	25	propane	99.8	6.5	61.7	2.9	0.2
12	50	25	propane	100	12.5	65.0	1.7	0.1
Soxhlet		69	hexane	100	80.0	70.1	2.5	1.6
Distillation		100	water	100	79.0	70.2	2.6	1.5
Microwave		69	hexane	100	67.0	39.2	12.1	0.7

**Table 11** Fatty oil content of coriander seed.

Samples	Parameters of examination				Components of fatty oil (%)			
	P (bar)	T ( $^{\circ}\text{C}$ )	Solvent	C16:0 Palmitic acid	C18:0 Stearic acid	C18:1 Oleic acid	C18:2 Linolic acid	
1	250	35	CO <sub>2</sub>	3.10	0.20	64.0	16.4	
2	250	35	CO <sub>2</sub>	0.40	0.10	80.7	15.7	
3	300	35	CO <sub>2</sub>	3.10	0.30	72.3	15.6	
4	300	35	CO <sub>2</sub>	3.48	0.50	79.0	17.1	
5	300	35	CO <sub>2</sub>	5.04	0.75	63.6	18.1	
6	200	35	CO <sub>2</sub>	3.30	0.70	73.1	15.9	
7	100	25	fluid CO <sub>2</sub>	5.00	0.10	76.5	17.7	
8	100	28	propane+ CO <sub>2</sub>	3.50	0.60	78.2	15.7	
9	80	28	propane +CO <sub>2</sub>	0.43	0.70	78.6	16.2	
10	100	25	propane +CO <sub>2</sub>	3.70	0.10	80.1	15.9	
11	80	25	propane	4.30	0.79	71.1	19.5	
12	50	25	propane	4.20	0.76	75.0	17.2	
Soxhlet		69	hexane	8.80	2.20	16.2	55.0	

**Table 12** Color material, tocopherol and umbelliferon content of coriander oils.

	SFE (Sample number 4)	Traditional
Pheophytin ( $\mu\text{g/g}$ )	42.0	34-709
Tocopherol ( $\mu\text{g/g}$ )	11.6	19.5
Umbelliferon ( $\mu\text{g/g}$ )	0.20	0.12

**Table 13** Tocopherol content ( $\mu\text{g/ml}$ ) of some coriander oil obtained by SFE method.

Sample	$\alpha$ -tocopherol	$\beta + \gamma$ tocopherol	$\delta$ -tocopherol	Total tocopherol
1	3.47	14.58	1.51	19.56
2	3.50	14.10	2.30	19.90
4	8.00	-	3.60	11.60
8	5.60	6.74	1.77	14.11
9	4.53	7.80	2.67	15.00
10	6.00	12.63	2.20	20.83
11	15.76	4.53	3.29	23.58

**Table 14** Element content of coriander samples  $\pm$  standard deviations ( $\mu\text{g/g}$ ).

Element	Fruit	Oil* obtained by traditional	Oil* obtained by SFE	Reminder of SFE
Al	32.48 $\pm$ 4.50	3.92 $\pm$ 0.38	<dl	25.27 $\pm$ 0.47
As	1.71 $\pm$ 0.50	<dl	<dl	0.975 $\pm$ 0.214
B	13.91 $\pm$ 0.12	<dl	0.36 $\pm$ 0.02	24.45 $\pm$ 0.69
Ba	2.22 $\pm$ 0.03	<dl	<dl	2.37 $\pm$ 0.03
Ca	7558 $\pm$ 125	<dl	<dl	8795 $\pm$ 38
Cr	0.513 $\pm$ 0.019	<dl	<dl	<dl
Cu	10.05 $\pm$ 0.50	<dl	0.89 $\pm$ 0.01	10.43 $\pm$ 0.51
Fe	56.73 $\pm$ 2.12	<dl	<dl	99.33 $\pm$ 2.01
K	8117 $\pm$ 25	86.66 $\pm$ 7.31	14.85 $\pm$ 0.88	20084 $\pm$ 293
Mg	3698 $\pm$ 18	1.65 $\pm$ 0.17	<dl	3306 $\pm$ 31
Mn	45.95 $\pm$ 0.42	<dl	<dl	29.04 $\pm$ 0.39
Na	28.07 $\pm$ 3.30	18.36 $\pm$ 2.94	17.24 $\pm$ 2.31	152.3 $\pm$ 2.5
P	5939 $\pm$ 18	83.40 $\pm$ 1.32	50.00 $\pm$ 1.10	5213 $\pm$ 48
S	2024 $\pm$ 11	173.2 $\pm$ 6.2	37.00 $\pm$ 3.61	2405 $\pm$ 8
Ti	2.08 $\pm$ 0.15	<dl	<dl	0.748 $\pm$ 0.043
Zn	38.37 $\pm$ 0.27	3.29 $\pm$ 0.18	0.51 $\pm$ 0.12	24.42 $\pm$ 0.20

<dl below detection limit

\*Oil means an aromatic oil, which is a mixture of fatty and essential oil.