

Table S1. Correlation between essential oil compounds

	Compounds	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	α -Pinene	1.00															
2	Camphene	0.61	1.00														
3	Sabinene	-0.22	-0.48	1.00													
4	β -Pinene	0.35	0.59	-0.20	1.00												
5	Myrcene	-0.39	-0.36	-0.15	-0.23	1.00											
6	Phellandrene	0.08	0.22	-0.08	0.25	-0.38	1.00										
7	α -Terpinene	-0.11	-0.17	0.24	0.11	-0.15	0.38	1.00									
8	p-Cymene	0.38	0.59	-0.11	0.80	-0.45	0.30	0.25	1.00								
9	1,8- cineol	0.02	0.41	-0.44	0.47	0.01	0.04	-0.03	0.42	1.00							
10	γ -Terpinene	0.18	-0.03	0.23	0.27	-0.35	0.46	0.87	0.43	-0.06	1.00						
11	cis-Sabinene hydrate	-0.46	-0.47	0.46	-0.36	0.02	-0.14	0.02	-0.19	-0.34	-0.09	1.00					
12	Terpinolene	0.29	0.32	0.25	0.50	-0.50	0.42	0.48	0.66	0.11	0.69	0.03	1.00				
13	cis-Thujone	-0.45	-0.30	-0.13	-0.32	0.63	-0.17	0.15	-0.23	-0.02	0.00	0.17	-0.28	1.00			
14	trans -Thujone	-0.03	-0.33	0.44	0.12	-0.05	0.20	0.31	0.05	-0.33	0.35	0.45	0.24	-0.10	1.00		
15	Camphor	0.38	0.85	-0.43	0.58	-0.48	0.30	-0.16	0.58	0.52	-0.01	-0.32	0.41	-0.36	-0.40	1.00	
16	Borneol	0.37	0.78	-0.41	0.51	-0.34	0.17	-0.12	0.56	0.39	0.08	-0.31	0.42	-0.24	-0.29	0.86	1.00
17	α -Terpineol	-0.19	-0.05	-0.26	-0.12	0.83	-0.60	-0.42	-0.39	0.12	-0.59	-0.17	-0.62	0.43	-0.24	-0.24	-0.14
18	trans -Carveol	0.12	0.26	-0.11	0.28	-0.37	0.98	0.38	0.33	0.10	0.46	-0.19	0.45	-0.18	0.17	0.32	0.20
19	cis-Carveol	0.10	-0.38	0.35	-0.15	0.07	0.03	0.16	-0.13	-0.65	0.15	0.35	-0.06	-0.07	0.70	-0.53	-0.38
20	Bornyl acetate	0.45	0.26	0.26	0.29	-0.35	0.25	0.10	0.40	-0.29	0.31	-0.11	0.37	-0.37	0.23	0.24	0.36
21	Carvacrol	0.07	0.17	-0.37	0.22	0.55	-0.51	-0.59	-0.07	0.34	-0.60	-0.18	-0.48	0.13	-0.11	0.06	0.10
22	(E)-Caryophyllene	-0.13	-0.45	0.61	-0.30	-0.21	0.21	0.37	-0.12	-0.59	0.32	0.47	0.16	-0.06	0.35	-0.32	-0.36
23	B-Gurjunene	0.28	0.03	0.18	-0.06	-0.38	0.06	-0.07	0.13	-0.45	0.01	0.33	0.06	-0.26	0.29	0.01	0.09
24	α -Humulene	-0.13	0.32	-0.60	0.00	0.17	0.23	-0.12	-0.01	0.36	-0.22	-0.25	-0.08	0.04	-0.53	0.42	0.44
25	Ledene	-0.03	-0.05	0.19	-0.02	-0.31	0.18	0.23	-0.07	-0.41	0.24	0.37	0.27	-0.29	0.38	-0.01	0.00
26	δ -Cadinene	-0.16	-0.43	0.31	-0.11	-0.11	-0.17	0.14	-0.04	-0.30	0.13	0.33	0.10	-0.33	0.48	-0.37	-0.22
27	Spathulenol	-0.03	0.01	0.37	0.17	-0.43	-0.12	-0.05	0.24	-0.06	-0.03	0.32	0.28	-0.50	0.00	0.23	0.16
28	Caryophyllene oxide	0.15	0.10	0.30	0.12	-0.41	0.05	0.28	0.35	-0.08	0.21	0.19	0.35	-0.49	0.07	0.16	0.16

29	Viridiflorol	0.02	0.06	0.35	0.28	-0.35	-0.18	0.07	0.33	-0.09	0.06	0.29	0.27	-0.52	0.17	0.16	0.16
30	Ledol	0.30	0.02	0.36	0.06	-0.13	-0.22	-0.11	0.03	-0.36	-0.03	0.08	0.17	-0.49	0.16	-0.04	0.13
31	Manool	0.05	-0.22	0.55	0.01	-0.38	-0.27	-0.03	0.06	-0.33	-0.01	0.51	0.14	-0.51	0.34	-0.12	-0.16
32	13-epi-Manool	0.13	-0.31	-0.05	-0.41	0.10	-0.17	-0.07	-0.23	-0.18	-0.09	0.26	-0.25	0.23	0.02	-0.45	-0.48

Part b: from of Table S1.

		17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
17	α -Terpineol	1.00															
18	<i>trans</i> -Carveol	-0.58	1.00														
19	<i>cis</i> -Carveol	-0.11	0.00	1.00													
20	Bornyl acetate	-0.33	0.27	0.40	1.00												
21	Carvacrol	0.79	-0.49	-0.12	-0.19	1.00											
22	(E)-Caryophyllene	-0.45	0.19	0.53	0.49	-0.59	1.00										
23	β -Gurjunene	-0.40	0.05	0.61	0.53	-0.21	0.52	1.00									
24	α -Humulene	0.16	0.28	-0.39	-0.09	0.07	-0.33	-0.26	1.00								
25	Ledene	-0.41	0.15	0.42	0.14	-0.50	0.36	0.37	-0.04	1.00							
26	δ -Cadinene	-0.24	-0.17	0.51	0.15	-0.24	0.24	0.18	-0.13	0.46	1.00						
27	Spathulenol	-0.31	-0.11	0.10	0.35	-0.22	0.38	0.43	0.03	0.46	0.35	1.00					
28	Caryophyllene oxide	-0.41	0.08	0.19	0.47	-0.36	0.51	0.46	-0.03	0.22	0.35	0.63	1.00				
29	Viridiflorol	-0.24	-0.17	0.14	0.37	-0.11	0.37	0.31	-0.14	0.31	0.46	0.72	0.80	1.00			
30	Ledol	-0.11	-0.19	0.32	0.55	-0.07	0.38	0.42	-0.10	0.20	0.41	0.48	0.63	0.69	1.00		
31	Manool	-0.31	-0.29	0.34	0.30	-0.17	0.55	0.46	-0.45	0.37	0.48	0.68	0.63	0.83	0.64	1.00	
32	13-epi-Manool <	0.03	-0.17	0.21	-0.21	-0.02	0.14	0.18	-0.13	-0.10	-0.09	-0.12	-0.15	-0.25	-0.12	0.13	1.00

Table S2. Mean comparison between different groups derived from cluster analysis in *S. officinalis* plants.

No	Compounds	Groups					
		G1	G2	G3	G4	G5	G6
1	α -Pinene	3.70 \pm (nd) ^{ab}	3.79 \pm (0.08) ^{ab}	3.39 \pm (0.21) ^{ab}	3.17 \pm (nd) ^{ab}	4.32 \pm (nd) ^a	2.99 \pm (nd) ^b
2	Camphene	3.11 \pm (nd) ^{bc}	4.00 \pm (0.09) ^{ab}	3.63 \pm (0.15) ^{bc}	3.01 \pm (nd) ^c	4.82 \pm (nd) ^a	3.10 \pm (nd) ^{bc}
3	Sabinene	0.24 \pm (nd) ^a	0.25 \pm (0.02) ^a	0.25 \pm (0.02) ^a	0.29 \pm (nd) ^a	0.22 \pm (nd) ^a	0.25 \pm (nd) ^a
4	β --Pinene	2.43 \pm (nd) ^a	2.68 \pm (0.08) ^a	2.61 \pm (0.04) ^a	2.55 \pm (nd) ^a	3.05 \pm (nd) ^b	2.54 \pm (nd) ^a
5	Myrcene	1.94 \pm (nd) ^a	1.59 \pm (0.05) ^a	2.10 \pm (0.16) ^a	1.68 \pm (nd) ^a	1.53 \pm (nd) ^a	2.32 \pm (nd) ^a
6	Phellandrene	0.00 \pm (nd) ^a	0.04 \pm (0.02) ^a	0.01 \pm (0.01) ^a	0.00 \pm (nd) ^a	0.00 \pm (nd) ^a	0.00 \pm (nd) ^a
7	α -Terpinene	0.19 \pm (nd) ^a	0.21 \pm (0.00) ^a	0.18 \pm (0.03) ^a	0.20 \pm (nd) ^a	0.00 \pm (nd) ^b	0.22 \pm (nd) ^a
8	ρ -Cymene	0.28 \pm (nd) ^b	0.32 \pm (0.02) ^{ab}	0.30 \pm (0.01) ^b	0.30 \pm (nd) ^{ab}	0.37 \pm (nd) ^a	0.29 \pm (nd) ^b
9	1,8- cineol	9.63 \pm (nd) ^a	10.35 \pm (0.27) ^a	9.70 \pm (0.33) ^a	9.37 \pm (nd) ^a	10.85 \pm (nd) ^a	11.07 \pm (nd) ^a
10	γ -Terpinene	0.41 \pm (nd) ^a	0.45 \pm (0.01) ^a	0.41 \pm (0.03) ^a	0.45 \pm (nd) ^a	0.39 \pm (nd) ^a	0.41 \pm (nd) ^a
11	<i>cis</i> -Sabinene hydrate	0.21 \pm (nd) ^a	0.16 \pm (0.01) ^a	0.19 \pm (0.01) ^a	0.21 \pm (nd) ^a	0.16 \pm (nd) ^a	0.17 \pm (nd) ^a
12	Terpinolene	0.20 \pm (nd) ^a	0.25 \pm (0.01) ^a	0.22 \pm (0.01) ^a	0.23 \pm (nd) ^a	0.23 \pm (nd) ^a	0.20 \pm (nd) ^a
13	<i>cis</i> -Thujone	42.22 \pm (nd) ^b	37.79 \pm (0.43) ^c	40.31 \pm (0.28) ^b	36.93 \pm (nd) ^c	34.38 \pm (nd) ^d	46.18 \pm (nd) ^a
14	<i>trans</i> -Thujone	10.38 \pm (nd) ^b	10.21 \pm (0.56) ^b	10.43 \pm (0.33) ^b	14.19 \pm (nd) ^a	10.29 \pm (nd) ^b	10.28 \pm (nd) ^b
15	Camphor	9.65 \pm (nd) ^c	13.14 \pm (0.18) ^{ab}	11.82 \pm (0.50) ^{a-c}	10.10 \pm (nd) ^c	14.38 \pm (nd) ^a	10.34 \pm (nd) ^{bc}
16	Borneol	1.18 \pm (nd) ^b	1.54 \pm (0.06) ^{ab}	1.46 \pm (0.06) ^{ab}	1.32 \pm (nd) ^{ab}	1.70 \pm (nd) ^a	1.26 \pm (nd) ^b
17	α -Terpineol	0.68 \pm (nd) ^a	0.53 \pm (0.02) ^a	0.83 \pm (0.11) ^a	0.55 \pm (nd) ^a	0.67 \pm (nd) ^a	0.90 \pm (nd) ^a
18	<i>trans</i> -Carveol	0.00 \pm (nd) ^a	0.04 \pm (0.02) ^a	0.01 \pm (0.01) ^a	0.00 \pm (nd) ^a	0.00 \pm (nd) ^a	0.00 \pm (nd) ^a
19	<i>cis</i> -Carveol	0.07 \pm (nd) ^a	0.02 \pm (0.02) ^a	0.03 \pm (0.01) ^a	0.09 \pm (nd) ^a	0.00 \pm (nd) ^a	0.00 \pm (nd) ^a

20	Bornyl acetate	0.84 ± (nd) ^a	0.96 ± (0.02) ^a	0.90 ± (0.04) ^a	0.92 ± (nd) ^a	0.91 ± (nd) ^a	0.75 ± (nd) ^a
21	Carvacrol	0.22 ± (nd) ^b	0.16 ± (0.02) ^b	0.29 ± (0.05) ^{ab}	0.15 ± (nd) ^b	0.54 ± (nd) ^a	0.32 ± (nd) ^{ab}
22	E -Caryophyllene	1.91 ± (nd) ^a	1.86 ± (0.15) ^a	1.72 ± (0.17) ^a	2.00 ± (nd) ^a	1.10 ± (nd) ^a	1.31 ± (nd) ^a
23	β -Gurjunene	0.24 ± (nd) ^a	0.23 ± (0.02) ^a	0.21 ± (0.02) ^a	0.24 ± (nd) ^a	0.23 ± (nd) ^a	0.12 ± (nd) ^a
24	α -Humulene	2.48 ± (nd) ^a	2.43 ± (0.23) ^a	2.37 ± (0.22) ^a	2.86 ± (nd) ^a	2.17 ± (nd) ^a	1.55 ± (nd) ^a
25	Ledene	0.19 ± (nd) ^{ab}	0.21 ± (0.02) ^{ab}	0.20 ± (0.01) ^{ab}	0.25 ± (nd) ^a	0.18 ± (nd) ^{ab}	0.14 ± (nd) ^b
26	δ -Cadinene	0.00 ± (nd) ^b	0.00 ± (0.00) ^b	0.00 ± (0.00) ^b	0.07 ± (nd) ^a	0.00 ± (nd) ^b	0.00 ± (nd) ^b
27	Spathulenol	0.16 ± (nd) ^{ab}	0.18 ± (0.01) ^{ab}	0.16 ± (0.01) ^{ab}	0.19 ± (nd) ^a	0.18 ± (nd) ^{ab}	0.11 ± (nd) ^b
28	Caryophyllene oxide	0.45 ± (nd) ^a	0.54 ± (0.04) ^a	0.47 ± (0.01) ^a	0.56 ± (nd) ^a	0.49 ± (nd) ^a	0.31 ± (nd) ^b
29	Viridiflorol	2.04 ± (nd) ^{bc}	2.44 ± (0.19) ^{ab}	2.39 ± (0.10) ^{a-c}	2.98 ± (nd) ^a	2.79 ± (nd) ^{ab}	1.59 ± (nd) ^c
30	Ledol	0.66 ± (nd) ^a	0.71 ± (0.03) ^a	0.69 ± (0.03) ^a	0.80 ± (nd) ^a	0.72 ± (nd) ^a	0.34 ± (nd) ^b
31	Manool	2.74 ± (nd) ^a	2.38 ± (0.43) ^{ab}	2.31 ± (0.23) ^{ab}	3.67 ± (nd) ^a	3.06 ± (nd) ^a	0.82 ± (nd) ^b
32	13-epi -Manool	1.10 ± (nd) ^a	0.00 ± (0.00) ^b	0.00 ± (0.00) ^b	0.00 ± (nd) ^b	0.00 ± (nd) ^b	0.00 ± (nd) ^b

Means followed by common letter are not significantly different at the level of 5% (Duncan's multiple range test).