

1 **Supplementary Information**

2 **MATERIALS AND METHODS**

3 **Chemicals**

4 The composition of OEO were analyzed in the laboratory using Hewlett-Packard 6890
5 gas chromatograph equipped with a cross-linked 5% PH ME siloxane
6 Hewlett-Packard-5MS capillary column (25m × 0.25mm ID, 0.25 μ m film thickness),
7 coupled to a Hewlett-Packard 5972A mass spectrometer (Hewlett Packard Ltd.,
8 Bracknell, UK). Relative percentage amounts were obtained directly from GC peak
9 areas. The absolute concentration of carvacrol was determined by gas
10 chromatography using external standard method. The GC operating conditions were
11 the same as above. The absolute concentrations of other ingredients were calculated
12 based on the relative percentage amounts (Table S1).

13

14 **Table S1.** Components of the oregano essential oil

Chemical constituents	Percentage	Absolute concentration (mg/ml)
α -Thujene/ α -pinene	0.66	0.29
Camphene	0.09	0.04
β -Pinene	0.07	0.03
Sabinene	0.04	0.02

Myrcene	0.86	0.38
α -Phellandrene	0.08	0.04
α -Terpinene	0.58	0.25
Limonene	0.13	0.06
1,8-Cineole+ β -phellandrene	0.09	0.04
β -Ocimene	0.07	0.03
γ -Terpinene	4.49	1.97
3-Octanone	0.07	0.03
p-Cymene	3.07	1.35
Terpinolene	0.04	0.02
3-Octanel	0.01	<0.01
1-Octen-3-ol	0.24	0.11
Dimethyl styrene	0.01	0.00
Trans-sabinene hydrate	0.10	0.04
Linalool	0.28	0.12
Cis-sabinene hydrate	0.06	0.03
1-Terpilool	0.04	0.02
Terpine-4-ol	0.34	0.15
Carvacrol methyl ether	0.22	0.10
β -Caryophyllene	1.41	0.62
Dihydrocarvone	0.08	0.04
α -Humulene	0.14	0.06
α -Terpineol	0.16	0.07
Bomeol	0.30	0.13

β -Bisabolene	0.70	0.31
Caryophyllene oxide	0.14	0.06
Thymol	3.50	1.54
Carvacrol	81.92	36.01
Total	99.99	
