

Plant Essential Oils as Healthy Functional Ingredients of Nutraceuticals and Diet Supplements. A Review

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Supplementary Materials

Table S1. Examples of common Essential Oils (including different chemotypes, CT) used in food products.

Plant EO	Parts used (extraction method)	Main and characteristic components (%)	Location	Ref.
Anise (<i>Pimpinella anisum</i>)	Fruits (steam distillation)	<i>t</i> -Anethole (78-94%), γ -himachalene (0.4–8.2%), <i>p</i> -anisaldehyde (tr-5.4%), methylchavicol (0.5–2.3%).	Italy, France, Greece, Hungary	[38]
Basil (<i>Ocimum basilicum</i>) CT: linalool/eugenol	Leaves (steam distillation)	Linalool (35-66%), eugenol (8-30%); others: 1,8-cineole (4-10%), α - <i>t</i> -bergamotene (1-5%), <i>t</i> -ocimene (0.5-3%), cadinol (1-6%)	Italy, Croatia, Albania	[187]
Basil (<i>Ocimum basilicum</i>) CT: citral/linalool	Leaves (steam distillation)	Citral (47-72%), linalool (6-11%); others: 1,8-cineole (0.2-1%), eugenol (0.1-0.5%), estragol (tr-5%), nerol (tr-5%), <i>t</i> -ocimene (tr-0.3%)	Italy, Romania	[187]
Basil (<i>Ocimum basilicum</i>) CT: linalool/1,8-cineole	Leaves (steam distillation)	Linalool (30-73%), 1,8-cineole (5-23%); others: α -terpineol (0.1-1%), <i>cis</i> -thujone (2-7%), eugenol (1-3%), <i>epi</i> - α -cadinol (3-4%), α - <i>t</i> -bergamotene (4-10%)	Brasil, Greece, India, Egypt, Mississipi	[187]
Bergamot (<i>Citrus bergamia</i>)	Fruit outer peel (cold pressing)	Limonene (30-50%), linalyl acetate (23-35%), β -pinene (5-10%), α -pinene (0.7-2%), γ -terpinene (6-18%), linalool (6-15%)	Italy	[164]
Chamomile, Roman (<i>Antemisa nobilis</i>) CT: isobutyl angelate	Flowers (steam distillation)	Isobutyl angelate (25-35%), isoamyl angelate (1-23%), 2-methyl butyl angelate (5-18%), isobutyl butyrate (0.1-2%)	France	[188]
Chamomile, German (<i>Matricaria chamomilla</i>) CT: α -bisabolol	Flowers (steam distillation)	α -Bisabolol (30-60%), α -bisabolol oxide A (2-5%), <i>t</i> - <i>t</i> -farnesol (10-16%), <i>cis</i> - β -farnesene (5-7%), chamazulene (0.5-4%)	Europe, Iran	[188]
Cumin, Green (<i>Cuminum cyminum</i>)	Fruits (steam distillation)	Cuminaldehyde (42%), <i>p</i> -cymene (16%), γ -terpinene (17%), β -pinene (11%), 2-carene-10-al (3%), <i>cis</i> -dihydrocarvone (3%)	Iran	[114]
Cumin, Black (<i>Nigella sativa</i>)	Seeds (steam distillation)	<i>p</i> -Cymene (19-48%), thymol (13-45%), thymoquinone (3-5%), β -elemene (1-11%), thujene (tr-11%)	Iran	[121–123]
Coriander, Fruit (<i>Coriandrum sativum</i>)	Mature Fruits (steam distillation)	Linalool (65-79%), γ -terpinene (4-7%), camphor (3%), geranyl acetate (2-4%), geraniol (1-3%), α -pinene (1-3%), limonene (1-2%)	Italy	[57]
Coriander, Leaves (<i>Coriandrum sativum</i>)	Leaves (steam distillation)	2-(<i>E</i>)-decenal (12-16%), decanal (9-12%), 2-(<i>E</i>)-dodecenal (6-16%),	Kenya, Massachusetts	[57]

		2-(E)-dedecen-1-ol (8-14%), undecanal (2-3%), dodecanal (4-5%)		
Garlic (<i>Allium sativum</i>)	Bulb (steam distillation)	Diallyl disulfide (41%), diallyl trisulfide (22%), diallyl sulfide (7%), others: (allyl methyl trisulfide, vinylidithiins, ajoene)	Spain	[129]
Lavender (<i>L. angustifolia</i>) ISO 3515:2002	Flowers, leaves or aerial parts (steam distillation)	Linalool (25-38%), linalyl acetate (25-45%), 1,8-cineole (1-2%), camphor (0.5-1%), β -ocimene (2.5-6%), terpinen-4-ol (2-6%), lavandulyl acetate (3.4-6.2%)	Italy, France, England, Bulgary, Greece	ISO
Lavender (<i>L. angustifolia</i>) Pharmaceutical	Flowers (steam distillation)	Linalool (20-45%), linalyl acetate (25-46%), 1,8-cineole (<2.5%), camphor (<1.2%), terpinen-4-ol (0.1-0.6%), limonene (<1%) lavandulyl acetate (>0.2%)	Europe, USA	Eur. Ph.
Lemon (<i>C. limon</i>)	Fruit outer peel (cold pressing)	Limonene (65-85%), sabiene (5-15%), γ -terpinene (3-12%), α -pinene (1-3%) β -pinene (1-3%), neral (0.2-1%), geranial (0.2-1%), β -caryophyllene (0.1-1%)	Italy	[5]
Lemon balm (<i>Melissa officinalis</i>) CT: citral	Leaf, top (steam distillation)	Geranial (6-51%), neral (4-35%), geranyl acetate (0.5-19%), citronellal (0.4-20%), β -caryophyllene (1-7%), caryophyllene oxide (1-44%), α -cadinol (5-6%), α -copaene (0.1-7%), germacrene D (0.2-2%)	Iran, Tunisia, Germany, France	[128]
Myrtle (<i>Myrtus communis</i>)	Leaves (hydrodistillation)	Myrtenyl acetate (31%), linalool (15%), α -pinene (11%) and 1,8-cineole (10%), linalyl acetate (5%)	Tunisia	[95]
Neroly (<i>Citrus aurantium</i> var. <i>amara</i>) ISO 3517:2002	Flowers (steam distillation)	Linalool (28-44%), limonene (8-18%), myrcene (1-4%), (E)- β -ocimene (3-8%), β -pinene (7-17%), α -terpineol (2-6%), farnesol (1-4%), nerolidol (1-5%), geranyl acetate (1-5%), neryl acetate (tr-2.5%), nerol (1%), geraniol (3%)	Tunisia, Morocco, Egypt, Italy	ISO
Orange, Bitter (<i>C. aurantium</i> var. <i>amara</i>)	Fruit outer peel (cold pressing)	Limonene (94%), β -myrcene (2.4%), α -pinene (0.6%), β -pinene (0.7%), linalyl acetate (0.8%), γ -terpinene (0.3%)	Italy	[49]
Orange, Sweet (<i>C. sinensis</i> or <i>C.</i> <i>aurantium</i> var. <i>dulcis</i>)	Fruit outer peel (cold pressing)	Limonene (78%), β -myrcene (3.1%), linalool (1.7%), α -pinene (1.4%), sabinene (1%), decanal (1%), neryl acetate (0.5%), geranial (0.4%), carvone (0.8%)	Brasil	[166]
Rosemary (<i>R. officinalis</i>) CT: cineole/camphor/ α - pinene	Leaves (hydrodistillation)	1,8-Cineole (44%), camphor (13%), α -pinene (12%), β -pinene (8%), camphene (5%), β -caryophyllene (4%), borneol (3%)	Serbia	[132]
Peppermint (<i>Mentha piperita</i>)	Leaves (steam distillation)	Menthol (50-60%), menthone (14-32%), menthyl acetate (2.8-10%), isomenthone (1.5-10%), menthofuran (1-9%), 1,8-cineole (3.5-14%), limonene (1-5%)	Europe, America	[33]
Pine (<i>Pinus sylvestris</i>)	Wood and leaves (steam distillation)	α -Pinene (20-30%), δ -3-carene (10-24%), β -pinene (1-5%), camphene (2-5%), terpinolene (1-2%), epi-cubebol (3-5%), β - caryophyllene (3-5%), germacrene D(2-7%)	Europe, USA	[5]
Sage (<i>Salvia officinalis</i>)	Leaves (steam distillation)	α -Thujone (17-27%), camphor (13-21%), 1,8-cineole (12-27%), β -thujone (4-6%),	Europe, America	[189]

CT: α -thujone/ camphor/1,8-cineole		β -caryophyllene (3-5%), α -Humulene (3-6%), viridiflorol (2-7%), limonene (1-2%)		
Thyme (<i>Thymus vulgaris</i>) CT: p-cymene/carvacrol	Leaf, top (steam distillation)	p-Cymene (45%), carvacrol (34%), camphene (9%), thymol (4%), α -pinene (4%), β -pinene (3%)	Italy	[20]
Thyme (<i>Thymus vulgaris</i>) CT: thymol	Leaf, top (steam distillation)	Thymol (37-67%), p-cymene (13-19%), γ -terpinene (6-19%), carvacrol (4-6%), myrcene (0.7-2.2%), linalool (1.8-2.2%)	Austria	[186]
Thyme (<i>Thymus vulgaris</i>) CT: thymol/carvacrol	Leaf, top (steam distillation)	Thymol (23%), carvacrol (26%), p-cymene (11%), γ -terpinene (19%), myrcene (1.9%), linalool (6%), β -caryophyllene (1.5%)	Austria	[186]
Yarrow (<i>Achillea millefolium</i>) CT: Germacrene D /sabinene/ β -pinene	Flowers (steam distillation)	Germacrene D (26%), sabinene (14), β -pinene (11%), β -caryophyllene (10%), chamazulene (10%), borneol (5%),	Iran	[85]