

GC-MS Profiling Analysis Prepared for Jade Bloom, Inc

Date: April 19, 2018
Sample: Yarrow Blue
Type: Essential Oil
Source: *Achillea millefolium*
Batch: 041888705

Identification	DB-5 (%)	DB-WAX (%)	Classe
Santolinatriene	0.54	0.55	Monoterpene
Tricyclene	0.02	0.02	Monoterpene
α -Thujene	0.28	0.29	Monoterpene
Artemisiatriene	3.65*	0.01	Monoterpene
α -Pinene	[3.65]*	3.72	Monoterpene
Camphene	0.49*	0.47	Monoterpene
α -Fenchene	[0.49]*	0.02	Monoterpene
Thuja-2,4(10)-diene	0.01	22.14*	Monoterpene
Sabinene	47.76*	[22.14]*	Monoterpene
β -Pinene	[47.76]*	26.42	Monoterpene
Octen-3-ol	0.03	0.02	Aliphatic alcohol
Dehydro-1,8-cineole	0.04	0.03	Monoterpenic ether
Myrcene	0.36*	0.36	Monoterpene
2-Pentylfuran	[0.36]*	0.01	Furan
Unknown	0.24	0.23	Monoterpene
α -Phellandrene	0.04*	0.03	Monoterpene
Pseudolimonene	[0.04]*	0.01	Monoterpene
<i>cis</i> -Dehydroxylnalool oxide	0.43*	0.01*	Monoterpenic ether
Yomogi alcohol	[0.43]*	0.44*	Monoterpenic alcohol
Δ 3-Carene	0.01	0.01	Monoterpene
α -Terpinene	0.30	0.30	Monoterpene
para-Cymene	0.26	0.26	Monoterpene
β -Phellandrene	4.98*	4.03*	Monoterpene
Limonene	[4.98]*	0.98	Monoterpene
1,8-Cineole	[4.98]*	[4.03]*	Monoterpenic ether
(<i>Z</i>)- β -Ocimene	0.01	[0.01]*	Monoterpene
(<i>E</i>)- β -Ocimene	0.05	0.05	Monoterpene
γ -Terpinene	0.15	0.15	Monoterpene
Artemisia ketone	5.26	5.37	Monoterpenic alcohol
<i>cis</i> -Sabinene hydrate	0.05	0.05	Monoterpenic alcohol
<i>cis</i> -Linalool oxide (fur.)	0.03*	0.01	Monoterpenic alcohol
Unknown	[0.03]*	0.03	Aliphatic ester
Artemisia alcohol	0.63*	0.59	Monoterpenic alcohol
Terpinolene	[0.63]*	0.03	Monoterpene
Nonen-3-ol	[0.63]*	0.03	Aliphatic alcohol
para-Cymenene	[0.63]*	0.08*	Monoterpene
<i>trans</i> -Sabinene hydrate	0.02	0.02*	Monoterpenic alcohol
Filifolone?	0.41*	[0.44]*	Monoterpenic ketone
Linalool	[0.41]*	0.33*	Monoterpenic alcohol
α -Thujone	0.03	0.05	Monoterpenic ketone
Unknown	0.22	0.22*	Oxygenated monoterpene
β -Thujone	0.04*	0.03	Monoterpenic ketone
endo-Fenchol	[0.04]*	0.04*	Monoterpenic alcohol
<i>cis</i> -para-Menth-2-en-1-ol	0.04	[0.33]*	Monoterpenic alcohol
Chrysanthenone	0.26	0.24	Monoterpenic ketone
4-Hydroxy-4-methylcyclohex-2-enone	0.06*	0.02	Aliphatic alcohol
Unknown	[0.06]*	0.08	Unknown
<i>trans</i> -Pinocarveol	0.07	0.11	Monoterpenic alcohol

Camphor	1.69	1.69*	Monoterpenic ketone
Unknown	0.07	[0.22]*	Unknown
Nerol oxide	0.01	0.02	Aliphatic ether
Borneol	0.82*	5.76*	Monoterpenic alcohol
Pinocarvone	[0.82]*	[0.02]*	Monoterpenic ketone
<i>cis</i> -Chrysanthenol	0.08	0.07	Monoterpenic alcohol
Artemisyl acetate	0.11	[0.08]*	Monoterpenic ester
Lavandulol	0.01	0.01	Monoterpenic alcohol
Terpinen-4-ol	0.32	0.33	Monoterpenic alcohol
<i>cis</i> -Chrysanthemol	0.04	0.12	Monoterpenic alcohol
α -Terpineol	1.01*	[5.76]*	Monoterpenic alcohol
Unknown	[1.01]*	0.08*	Unknown
<i>para</i> -Cymen-8-ol	[1.01]*	0.02*	Monoterpenic alcohol
Myrtenal	0.05	0.06	Monoterpenic aldehyde
Myrtenol	0.03	0.04	Monoterpenic alcohol
<i>trans</i> -Piperitol	0.01	0.26*	Monoterpenic alcohol
Fragranol	0.10	0.14*	Monoterpenic alcohol
<i>trans</i> -Carveol	0.02	0.02	Monoterpenic alcohol
Bornyl formate	0.01		Monoterpenic ester
Nerol	0.04	[0.14]*	Monoterpenic alcohol
<i>trans</i> -Chrysanthenyl acetate	0.44	0.45*	Monoterpenic ester
Piperitone	0.04	0.14*	Monoterpenic ketone
<i>cis</i> -Chrysanthenyl acetate	0.08	[0.08]*	Monoterpenic ester
Linalyl acetate	0.13*	0.23	Monoterpenic ester
Geraniol	[0.13]*	[0.02]*	Monoterpenic alcohol
Bornyl acetate	0.26	0.23	Monoterpenic ester
Lavandulyl acetate	1.13	1.10	Monoterpenic ester
<i>trans</i> -Pinocarvyl acetate	0.04	0.04	Monoterpenic ester
Isoascaridole	0.01	0.01	Monoterpenic ether
Bicycloelemene	0.05	0.02	Sesquiterpene
δ -Elemene	0.08	0.10	Sesquiterpene
Fragranyl acetate	0.04	[5.76]*	Monoterpenic ester
α -Terpinyl acetate	0.04*	0.06	Monoterpenic ester
α -Cubebene	[0.04]*	0.01	Sesquiterpene
Unknown	0.21		Monoterpenic ester
Eugenol	0.02	0.02	Phenylpropanoid
Neryl acetate	0.08	0.08	Monoterpenic ester
α -Copaene	0.08	[1.69]*	Sesquiterpene
Daucene	0.07	[1.69]*	Sesquiterpene
β -Bourbonene	0.10	0.09	Sesquiterpene
<i>cis</i> - β -Elemene	0.02	0.01	Sesquiterpene
Lavandulyl propionate	0.03		Monoterpenic ester
Geranyl acetate	0.14	0.11	Monoterpenic ester
β -Elemene	0.31	9.40*	Sesquiterpene
(<i>Z</i>)-Jasmone	0.16	0.14	Jasmonate
Isocaryophyllene	0.04	0.03	Sesquiterpene
α -Gurjunene	0.10*	[0.45]*	Sesquiterpene
Methyleugenol	[0.10]*	0.01	Phenylpropanoid
β -Caryophyllene	9.13	[9.40]*	Sesquiterpene
β -Copaene	0.05	[0.04]*	Sesquiterpene
<i>trans</i> - α -Bergamotene	0.04	[9.40]*	Sesquiterpene
α -Himachalene	0.03	0.04	Sesquiterpene

α -Humulene	0.89	0.87	Sesquiterpene
(E)- β -Farnesene	0.09	0.09	Sesquiterpene
Germacrene D	5.39*	[5.76]*	Sesquiterpene
γ -Muurolene	[5.39]*	0.11	Sesquiterpene
β -Selinene	0.17	[0.14]*	Sesquiterpene
Bicyclogermacrene	0.18	0.13	Sesquiterpene
α -Muurolene	0.07	0.04	Sesquiterpene
γ -Cadinene	0.15	0.20	Sesquiterpene
δ -Cadinene	0.28*	[0.26]*	Sesquiterpene
<i>trans</i> -Calamenene	[0.28]*	0.13	Sesquiterpene
β -Sesquiphellandrene	0.11	0.06	Sesquiterpene
α -Cadinene	0.02	0.03	Sesquiterpene
α -Calacorene	0.03	0.02	Sesquiterpene
Palustrol	0.03	0.01	Sesquiterpenic alcohol
(E)-Nerolidol	0.28	0.31*	Sesquiterpenic alcohol
Spathulenol	0.10	0.10	Sesquiterpenic alcohol
Caryophyllene oxide	1.27*	1.17	Sesquiterpenic ether
Caryophyllene oxide isomer	[1.27]*	0.02	Sesquiterpenic ether
Viridiflorol	0.20	0.15	Sesquiterpenic alcohol
Copaborneol	0.06	0.05	Sesquiterpenic alcohol
Humulene epoxide II	0.08	1.02*	Sesquiterpenic ether
Junenol	0.04	0.03	Sesquiterpenic alcohol
1,10-diepi-Cubenol	0.08	[1.02]*	Sesquiterpenic alcohol
1-epi-Cubenol	0.16	[0.31]*	Sesquiterpenic alcohol
Caryophylladienol II	0.17*	0.07	Sesquiterpenic alcohol
<i>cis</i> -Cadin-4-en-7-ol	[0.17]*	0.14	Sesquiterpenic alcohol
τ -Muurolol	0.08*	0.05	Sesquiterpenic alcohol
τ -Cadinol	[0.08]*	0.05	Sesquiterpenic alcohol
β -Eudesmol	0.08	0.06	Sesquiterpenic alcohol
α -Eudesmol	0.08	0.20*	Sesquiterpenic alcohol
Unknown	0.11	0.05	Oxygenated sesquiterpene
α -Bisabolol	0.14	[0.20]*	Sesquiterpenic alcohol
Chamazulene	2.27	2.33	Azulene
Phytone	0.14	0.17	Terpenic ketone
Palmitoleic acid	0.16		Aliphatic acid
Phytol	0.07	0.07	Diterpenic alcohol
Total identified	96.20%	96.16%	

*: Two or more compounds are coeluting on this column

[xx]: Duplicate percentage due to coelutions, not taken account in the identified total

Note: no correction factor was applied

PHYSICOCHEMICAL DATA

Physical aspect: Dark blue liquid

Refractive index: 1.4798 \pm 0.0003 (20 °C)

CONCLUSION

No adulterant, contaminant or diluent has been detected using this method.