

ANALYSIS Mandarin Essential Oil

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PhytoChemia



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Date : April 7, 2017

SAMPLE IDENTIFICATION

Internal code : 17C27-FSE12-1-DM

Customer identification : Mandarin - Lot #00-4716

Type : Essential oil

Source : Citrus reticulata

Customer : Flowers Shining Everywhere Inc.

ANALYSIS

Method : PC-PA-001-15E06, "Analysis of the composition of a liquid essential oil by GC-FID" (in French).

Analyst : Sylvain Mercier, M. Sc., chimiste

Analysis date : 2017-04-04

Checked and approved by :



Alexis St-Gelais, M. Sc., chimiste 2013-174



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IDENTIFIED COMPOUNDS

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
α -Thujene	3.30	922	0.59	0.63	951	1.20	Monoterpene
α -Pinene	3.41	928	2.03	1.99	942	1.15	Monoterpene
Camphene	3.69	945	0.02	0.01	995	1.43	Monoterpene
Sabinene	4.12	970	0.23	0.22	1054	1.96	Monoterpene
β -Pinene	4.18	974	1.28	1.27	1036	1.79	Monoterpene
Myrcene	4.26	991	1.70	1.66	1114	2.54	Monoterpene
α -Phellandrene	4.73*	1006	0.06	0.05	1107	2.45	Monoterpene
Δ^3 -Carene	4.73*	1006	[0.06]	0.01	1084	2.26	Monoterpene
Octanal	4.84	1013	0.07	0.07	1230	4.11	Aliphatic aldehyde
α -Terpinene	4.92	1017	0.28	0.33	1120	2.62	Monoterpene
Limonene	5.26*	1035	74.89	74.65	1149	3.00	Monoterpene
1,8-Cineole	5.26*	1035	[74.89]	0.29	1150	3.02	Monoterp. ether
para-Cymene	5.26*	1035	[74.89]	0.85	1206	3.77	Monoterpene
cis- β -Ocimene	5.34	1039	tr	15.22	1191	3.55*	Monoterpene
trans- β -Ocimene	5.51	1049	0.02	0.02	1200	3.67	Monoterpene
γ -Terpinene	5.74	1062	15.02	[15.22]	1191	3.55*	Monoterpene
cis-Linalool oxide (fur.)	5.94	1071	0.01	0.01	1380	6.41	Monoterp. alcohol
cis-Sabinene hydrate	5.99	1075	0.01	0.01	1404	6.78	Monoterp. alcohol
Octanol	6.13	1083	0.01	0.01	1500	9.09	Aliphatic alcohol
Terpinolene	6.17	1085	0.60	0.60	1221	3.97	Monoterpene
Linalool	6.59	1105	0.12	0.10	1491	8.85	Monoterp. alcohol
Nonanal	6.74	1111	0.02	0.02	1333	10.89	Aliphatic aldehyde
cis-Limonene oxide	7.29	1131	0.01	0.01	1368	6.21	Monoterp. ether
trans-Limonene oxide	7.40	1135	0.01	0.01	1391	6.58	Monoterp. ether
Citronellal	7.90	1153	0.02	0.02	1413	6.99	Monoterp. aldehyde
Terpinen-4-ol	8.65	1181	0.03	0.02	1525	9.88	Monoterp. alcohol
α -Terpineol	9.25	1202	0.10	0.09	1620	13.62	Monoterp. alcohol
Decanal	9.69	1211	0.07	0.07	1432	7.46	Aliphatic aldehyde
Geranial	12.63	1277	0.04	0.04	1627	13.93	Monoterp. aldehyde
α -Copaene	17.51	1358	0.01	0.01	1424	7.27	Sesquiterpene
β -Caryophyllene	20.35	1401	0.07	0.07	1514	9.50	Sesquiterpene
Dimethyl anthranilate	20.68	1405	0.24	0.23	1932	33.30	Phenolic ester
Dodecanal	21.46	1414	0.02	0.01	1640	14.64	Aliphatic aldehyde
(E,E)- α -Farnesene	28.78	1503	0.14	0.15	1685	17.00	Sesquiterpene
α -Sinensal	41.49	1752	0.28	0.29	2221	42.99	Sesquiterp. aldehyde
Tangeretin	69.84	3158	0.88				Flavonoid
Nobiletin	72.57	3329	0.11				Flavonoid

Essential oil, Citrus reticulata
Internal Code: 17C27-FSE12-I-DM

Customer Identification:
Mandarin - Lot #00-4716

Report prepared for
Flowers Shining Everywhere Inc.

Heptamethoxyflavone isomer?	72.81	3341	0.44	livinglibation	Flavonoid
Total identified	99.43%			99.04%	

*: 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

OTHER DATA

Physical aspect : Orange liquid

Refractive Index : 1.4735 \pm 0.0003 (20 °C)

CONCLUSION

No obvious adulterant, contaminant or diluent were detected using this method.



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