

Date : March 17, 2017

SAMPLE IDENTIFICATION

Internal code : 17C03-NGA11-1-DM

Customer identification : Red Grapefruit - IS-162765

Type : Essential oil

Source : *Citrus x paradisi*

Customer : Nature's Gift Aromatherapy

ANALYSIS

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

Identifications double-checked by GC-MS

Analyst : Sylvain Mercier, M. Sc., chimiste

Analysis date : 2017-03-10

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 -Pinene	3.40	928	0.47	0.47	947	1.18	Monoterpene
Sabinene	4.11	970	0.46	0.46	1059	2.01	Monoterpene
β -Pinene	4.17	974	0.04	0.04	1041	1.83	Monoterpene
Myrcene	4.45	990	1.76	1.75	1118	2.59	Monoterpene
α -Phellandrene	4.72	1006	0.03	0.02	1111	2.51	Monoterpene
Octanal	4.83	1012	0.35	0.34	1234	4.18	Aliphatic aldehyde
Limonene	5.26*	1035	88.88	89.44	1155	3.08	Monoterpene
para-Cymene	5.26*	1035	[88.88]	tr	1210	3.83	Monoterpene
1,8-Cineole	5.26*	1035	[88.88]	0.29	1156	3.10	Monoterp. ether
cis- β -Ocimene	5.33	1039	0.01	0.01	1189	3.53*	Monoterpene
trans- β -Ocimene	5.50	1049	0.18	0.17	1204	3.73	Monoterpene
γ -Terpinene	5.69	1059	tr	[0.01]	1189	3.53*	Monoterpene
Octanol	6.12	1082	0.03	0.02	1507	9.27	Aliphatic alcohol
Terpinolene	6.15	1084	0.01	0.01	1225	4.04	Monoterpene
Linalool	6.58	1105	0.10	0.09	1498	9.02	Monoterp. alcohol
Nonanal	6.73	1110	0.06	0.05	1337	5.73	Aliphatic aldehyde
Citronellal	7.89	1153	0.09	0.08	1418	7.10	Monoterp. aldehyde
α -Terpineol	9.25	1202	0.04	0.03	1627	13.91	Monoterp. alcohol
Decanal	9.68	1211	0.31	0.28	1437	7.59	Aliphatic aldehyde
Neral	11.01	1241	0.04	0.03	1603	12.79	Monoterp. aldehyde
Geranial	12.48	1273	0.07	0.06	1651	15.19	Monoterp. aldehyde
α -Copaene	17.49*	1358	0.09	0.09	1430	7.40	Sesquiterpene
Neryl acetate	17.49*	1358	[0.09]	0.03	1662	15.82	Monoterp. ester
β -Cubebene	18.46	1373	0.08	0.09	1473	8.45	Sesquiterpene
Geranyl acetate	19.13	1383	0.07	0.07	1693	17.42	Monoterp. ester
β -Caryophyllene	20.31	1401	0.27	0.28	1520	9.70	Sesquiterpene
Dodecanal	21.43	1414	0.04	0.02	1646	14.94	Aliphatic aldehyde
trans- α -Bergamotene	21.58	1416	0.01	0.01	1523	9.84	Sesquiterpene
α -Humulene	23.06	1434	0.03	0.04	1581	11.98	Sesquiterpene
trans- β -Farnesene	24.24	1448	0.03	0.01	1619	13.55	Sesquiterpene
Germacrene D	25.24	1460	0.07	0.07	1621	13.63	Sesquiterpene
δ -Cadinene	28.93	1505	0.10	0.12	1674	16.38	Sesquiterpene
Caryophyllene oxyde	33.46	1568	0.02				Sesquiterp. ether
β -Sinensal	39.54	1692	0.04	0.04	2130	40.63	Sesquiterp. aldehyde
Nootkatone	42.71	1790	0.27	0.25	2355	46.01	Sesquiterp. ketone
Osthole	53.22	2222	0.13				Coumarin
Isoauraptene	53.28	2225	0.25	0.24	3436	64.69	Coumarin
Meranzin	53.47	2234	0.35				Coumarin
Auraptanol	54.20	2269	0.06				Coumarin
Auraptene	60.94	2618	0.75	0.50	3740	68.96	Coumarin
Epoxyauraptene?	63.32	2754	0.45				Coumarin

Tangeretin	69.76	3153	0.17		Flavonoid
Heptamethoxyflavone isomer?	72.54	3328	0.28		Flavonoid
Hexamethoxyflavone isomer?	72.76	3339	0.22		Flavonoid
Total identified	96.71%			95.5%	

*: 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 : Bright orange liquid

Refractive index : 1.4748 ± 0.0003 (20 °C)

CONCLUSION

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



