



PLANT THERAPY
100% PURE ESSENTIAL OILS

GC/MS BATCH NUMBER: L70104

ESSENTIAL OIL: LEMON ORGANIC
BOTANICAL NAME: CITRUS X LIMON
ORIGIN: ITALY

KEY CONSTITUENTS PRESENT IN THIS BATCH OF LEMON ORGANIC OIL	%
LIMONENE	65.8
β-PINENE	12.5
γ-TERPINENE	9.5
α-PINENE	2.1
GERANIAL	1.9
SABINENE	1.8
MYRCENE	1.5
NERAL	1.1

Date : January 18, 2017

SAMPLE IDENTIFICATION

Internal code : 17A10-PTH16-1-DM

Customer identification : Organic Lemon - Italy - L7010464R

Type : Essential Oil

Source : *Citrus x limon*

Customer : Plant Therapy

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 : 2017-01-18

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.	
Tricyclene	3.15	915	0.01	0.01	914	1.14	Monoterpene
α -Thujene	3.24	921	0.39	0.42	952	1.30	Monoterpene
α -Pinene	3.34	927	2.06	2.03	941	1.25	Monoterpene
Camphene	3.62	945	0.07	0.06	989	1.56	Monoterpene
Sabinene	4.07	973	1.78	1.87	1064	2.13	Monoterpene
β -Pinene	4.15	978	12.47	12.66	1044	1.98	Monoterpene
Myrcene	4.40	994	1.51	1.47	1114	2.72	Monoterpene
α -Phellandrene	4.67*	1007	0.04	0.03	1107	2.63	Monoterpene
Δ 3-Carene	4.67*	1007	[0.04]	tr	1085	2.29	Monoterpene
Octanal	4.80	1014	0.06	0.06	1231	4.35	Aliphatic aldehyde
α -Terpinene	4.86	1017	0.14	0.14	1121	2.81	Monoterpene
Limonene	5.19*	1034	66.93	65.84	1149	3.19	Monoterpene
para-Cymene	5.19*	1034	[66.93]	0.58	1208	4.00	Monoterpene
1,8-Cineole	5.19*	1034	[66.93]	0.39	1151	3.21	Monoterp. ether
<i>cis</i> - β -Ocimene	5.28	1039	0.04	9.44	1191	3.76*	Monoterpene
<i>trans</i> - β -Ocimene	5.46	1048	0.12	0.10	1200	3.89	Monoterpene
γ -Terpinene	5.68	1059	9.52	[9.44]	1191	3.76*	Monoterpene
<i>cis</i> -Sabinene hydrate	6.00	1076	0.02	0.02	1403	7.20	Monoterp. alcohol
Terpinolene	6.11	1082	0.24	0.24	1222	4.21	Monoterpene
Linalool	6.64	1105	0.09	0.09	1494	9.50	Monoterp. alcohol
Nonanal	6.69	1107	0.06	0.05	1332	5.91	Aliphatic aldehyde
<i>cis</i> -Limonene oxide	7.23	1127	0.03	0.03	1371	6.55	Monoterp. ether
<i>trans</i> -Limonene oxide	7.34	1132	0.02	0.02	1384	6.76	Monoterp. ether
Citronellal	7.85	1150	0.02	0.02	1410	7.39	Monoterp. aldehyde
Terpinen-4-ol	8.67	1181	0.02	0.02	1523	10.63	Monoterp. alcohol
α -Terpineol	9.35	1202	0.04	0.05	1618	14.73	Monoterp. alcohol
Decanal	9.62	1208	0.02	0.03	1430	7.88	Aliphatic aldehyde
Neral	10.99	1239	1.13	1.11	1595	13.50	Monoterp. aldehyde
Geranial	12.50	1272	1.86	1.82	1644	16.05	Monoterp. aldehyde
Neryl acetate	17.58	1357	0.41	0.38	1653	16.56	Monoterp. ester
Geranyl acetate	19.06	1379	0.58	0.54	1686	18.33	Monoterp. ester
β -Caryophyllene	20.18	1396	0.03	0.03	1509	10.11	Sesquiterpene
<i>trans</i> - α -Bergamotene	21.73	1414	0.05	0.04	1515	10.33	Sesquiterpene
β -Bisabolene	28.37	1494	0.06	0.08	1647	16.21	Sesquiterpene
Oxypeucedanin	58.36	2467	0.02				Coumarin
Total identified			99.84%	99.67%			

*: 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 : Yellow liquid

Refractive index : 1.4725 ± 0.0003 (20 °C)

CONCLUSION

No adulterant, contaminant or diluent were detected using this method. The sample is however relatively poor in beta-bisabolene for Italian lemon.



