



PLANT THERAPY
100% PURE ESSENTIAL OILS

GC/MS BATCH NUMBER: L60108

ESSENTIAL OIL: LEMON

BOTANICAL NAME: CITRUS X LIMON

ORIGIN: ITALY

KEY CONSTITUENTS PRESENT IN THIS BATCH OF LEMON OIL	%
LIMONENE	65.8
β-PINENE	11.5
γ-TERPINENE	9.1
SABINENE	1.9
α-PINENE	1.8
GERANIAL	1.7
MYRCENE	1.5
NERAL	1.0

Comments from Robert Tisserand: Superlative "grated lemon peel" odor profile. Meets 10 of 13 ISO standards for Coast type Lemon oil, with 3 borderline - not a concern.

Date : October 9, 2017

SAMPLE IDENTIFICATION

Internal code : 17J06-PTH1-1-CC

Customer identification : Lemon - Italy - L6010874R

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).

Identifications double-checked by GC-MS

Analyst : Alexis St-Gelais, M. Sc., chimiste

Analysis date : 2017-10-07

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	920	0.38	0.83	944	1.22*	Monoterpene
α -Pinene	3.41	926	1.75	[0.83]	944	1.22*	Monoterpene
Camphene	3.70	943	0.06	0.04	987	1.46	Monoterpene
Sabinene	4.14	969	1.89	2.37	1052	2.01	Monoterpene
β -Pinene	4.23	974	11.46	10.80	1034	1.85	Monoterpene
Myrcene	4.48	989	1.46	1.65	1110	2.61*	Monoterpene
α -Phellandrene	4.75	1005	0.05	0.02	1103	2.51	Monoterpene
Octanal	4.87	1011	0.08	0.10	1227	4.17	Aliphatic aldehyde
α -Terpinene	4.94	1015	0.20	[1.65]	1110	2.61*	Monoterpene
Limonene	5.28*	1033	66.12	65.79	1146	3.07	Monoterpene
para-Cymene	5.28*	1033	[66.12]	0.31	1206	3.85*	Monoterpene
cis- β -Ocimene	5.36	1038	0.06	9.20	1184	3.61*	Monoterpene
trans- β -Ocimene	5.54	1047	0.11	[0.31]	1206	3.85*	Monoterpene
γ -Terpinene	5.76	1059	9.09	[9.20]	1184	3.61*	Monoterpene
cis-Sabinene hydrate	6.06	1076	0.04	0.04	1398	6.87	Monoterp. alcohol
Terpinolene	6.20	1083	0.37	0.34	1221	4.08	Monoterpene
Linalool	6.70	1106	0.14	0.11	1489	9.03	Monoterp. alcohol
Nonanal	6.79	1109	0.10	0.09	1332	5.75	Aliphatic aldehyde
Citronellal	7.97	1152	0.09	0.09	1410	7.14	Monoterp. aldehyde
Terpinen-4-ol	8.80	1183	0.04	0.37	1520	10.11*	Monoterp. alcohol
α -Terpineol	9.47	1203	0.18	0.19	1614	13.86*	Monoterp. alcohol
Decanal	9.80	1211	0.05	0.05	1431	7.64	Aliphatic aldehyde
Nerol	10.58	1228	0.08	0.11	1720	19.78	Monoterp. alcohol
Citronellol	10.86	1234	0.02	0.03	1699	18.41	Monoterp. alcohol
Neral	11.17	1241	1.03	1.06	1591	12.78	Monoterp. aldehyde
Geraniol	11.88	1256	0.04	0.06	1771	23.23	Monoterp. alcohol
Geranial	12.71	1274	1.69	1.72	1639	15.19*	Monoterp. aldehyde
Undecanal	14.72	1312	0.02	0.03	1534	10.63	Aliphatic aldehyde
Neryl acetate	17.87	1360	0.53	1.06	1652	15.90*	Monoterp. ester
Geranyl acetate	19.36	1382	0.34	0.36	1684	17.62	Monoterp. ester
β -Caryophyllene	20.60	1400	0.20	0.16	1513	9.85	Sesquiterpene
Dodecanal	21.75	1414	0.01	0.03	1634	14.93	Aliphatic aldehyde
trans- α -Bergamotene	22.17	1419	0.32	[0.37]	1520	10.11*	Sesquiterpene
trans- β -Farnesene	24.51	1447	0.03	[0.19]	1614	13.86*	Sesquiterpene
Valencene?	26.63	1472	0.05				Sesquiterpene
Bicyclogermacrene	26.86	1475	0.06	[1.72]	1639	15.19*	Sesquiterpene
β -Bisabolene	28.88	1499	0.49	[1.06]	1652	15.90*	Sesquiterpene
α -Bisabolol	39.57	1688	0.02	0.02	2121	40.90	Sesquiterp. alcohol
Oxypeucedanin	58.57	2476	0.09				Furanocoumarin
Total identified			98.74%	97.03%			

*: 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

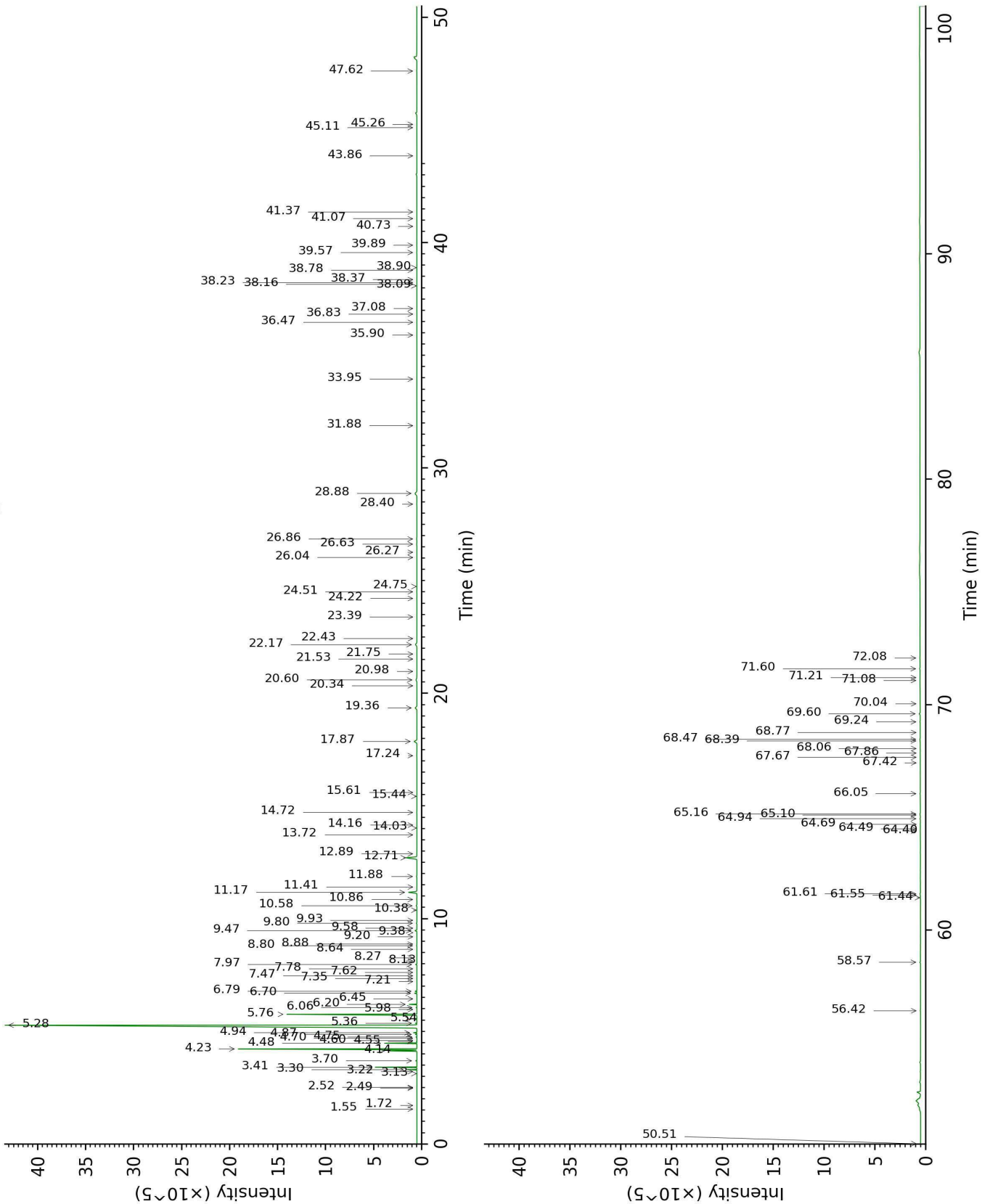
Physical aspect : Yellow liquid

Refractive index : 1.4745 ± 0.0003 (20 °C)

CONCLUSION

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

17J06-PTH1-1-CC_BP5



17J06-PTH1-1-CC_WAX

