



GC/MS BATCH NUMBER: E10103

ESSENTIAL OIL: EUCALYPTUS LEMON ORGANIC
BOTANICAL NAME: EUCALYPTUS CITRIODORA
ORIGIN: BRAZIL

KEY CONSTITUENTS PRESENT IN THIS BATCH OF OIL	%
CITRONELLAL	69.0
ISOPULEGOL	6.3
CITRONELLOL	5.7
iso-ISOPULEGOL	3.5

Comments from Robert Tisserand: Has a beautiful, deep green odor. This appears to be an unrectified Lemon Eucalyptus oil with a number of low-boiling unknown compounds showing at the end of the analysis.

Date : September 30, 2016

SAMPLE IDENTIFICATION

Internal code : 16I22-PTH3-1-DM

Customer identification : Organic Eucalyptus citriodora - E10103511R

Type : Essential oil

Source : *Eucalyptus citriodora*

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 : 2016-09-30

Checked and approved by :

Sylvain Mercier, M. Sc., chimiste 2014-005

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IDENTIFIED COMPOUNDS

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
Isobutyl isobutyrate	3.18	914	0.17	0.15	1031	1.29	Aliphatic ester
α -Thujene	3.24	918	0.02	0.03	950	0.88	Monoterpene
α -Pinene	3.35	924	0.19	0.18	943	0.85	Monoterpene
Sabinene	4.06	967	0.06	0.05	1053	1.47	Monoterpene
β -Pinene	4.12	971	0.57	0.57	1036	1.34	Monoterpene
Myrcene	4.41	988	0.12	0.12	1112	1.95	Monoterpene
α -Phellandrene	4.68	1004	0.02	0.01	1119	2.03	Monoterpene
Isoamyl isobutyrate	4.88	1015	0.05	1.08	1141	2.29*	Aliphatic ester
para-Cymene	5.06	1025	0.04	0.15	1206	3.03*	Monoterpene
Limonene	5.09	1027	0.16	0.12	1137	2.23	Monoterpene
1,8-Cineole	5.15	1030	0.94	[1.08]	1141	2.29*	Monoterp. ether
<i>cis</i> - β -Ocimene	5.28	1037	0.17	0.29	1183	2.78*	Monoterpene
<i>trans</i> - β -Ocimene	5.46	1047	0.05	0.04	1198	2.95	Monoterpene
γ -Terpinene	5.64	1057	0.12	[0.29]	1183	2.78*	Monoterpene
Bergamal	5.66	1058	0.17	0.14	1289	4.17	Aliphatic aldehyde
para-Mentha-3,8-diene	5.89	1070	0.12	[0.15]	1206	3.03*	Monoterpene
Terpinolene	6.11	1082	0.09	0.06	1221	3.23	Monoterpene
Fenchone	6.25	1090	0.01	0.01	1318	4.57	Monoterp. ketone
Linalool	6.64	1107	0.45	6.99	1492	7.41*	Monoterp. alcohol
<i>cis</i> -Rose oxide	6.70	1109	0.10	0.12	1292	4.21	Monoterp. ether
<i>trans</i> -Rose oxide	7.05	1122	0.04	0.03	1303	4.37	Monoterp. ether
Isopulegol	7.77	1149	6.29	[6.99]	1492	7.41*	Monoterp. alcohol
Citronellal	8.10*	1161	73.91	69.00	1427	6.17*	Monoterp. aldehyde
iso-Isopulegol	8.10*	1161	[73.91]	3.50	1479	7.16	Monoterp. alcohol
Isomenthone	8.11	1161	0.74	[69.00]	1427	6.17*	Monoterp. ketone
neoiso-Isopulegol	8.37	1171	0.41				Monoterp. alcohol
Borneol	8.58	1179	0.11	0.38	1602	10.36*	Monoterpé. alcohol
Terpinen-4-ol	8.70	1184	0.03	0.49	1539	8.48	Monoterp. alcohol
α -Terpineol	9.35	1203	0.08	0.08	1624	11.02	Monoterp. alcohol
Nerol	10.52	1230	0.12	0.04	1728	15.58	Monoterp. alcohol
Citronellol	10.87	1237	5.71	5.75	1708	14.64	Monoterp. alcohol
Geraniol	11.82	1259	0.05	0.05	1782	18.63	Monoterp. alcohol
Geranial	12.50	1273	0.02	0.03	1649	12.07	Monoterp. aldehyde
Citronellyl acetate	17.00	1349	0.39	[0.38]	1602	10.36*	Monoterp. ester
para-Menthane-3,8-diol isomer I	17.47	1357	0.90				Monoterp. alcohol
Citronellic acid	18.15	1367	0.38	0.34	2222	40.45	Monoterp. acid
8-Hydroxy-neo-menthol?	19.45	1387	0.45				Monoterp. alcohol
para-Menthane-3,8-diol isomer II	19.94	1394	0.10				Monoterp. alcohol
β -Caryophyllene	20.22	1398	0.52	0.51	1524	8.05	Sesquiterpene

α -Humulene	22.98	1431	0.03	0.02	1584	9.79	Sesquiterpene
<i>cis</i> - β -Guaiene	26.38	1471	0.02	0.01	1597	10.19	Sesquiterpene
Unknown (m/z = 69, 41 (38), 81 (33), 121 (32), 83 (31)... 210? (4))	44.88	1866	0.10				
Unknown (m/z = 81, 121 (77), 93 (75), 69 (74), 41 (53), 205 (51)... 290 (25))	45.01	1871	0.15				
Unknown (m/z = 81, 93 (81), 69 (76), 121 (75), 205 (68), 41 (55)... 290 (27))	45.16	1876	0.14				
Unknown (m/z = 137, 81 (97), 95 (51), 69 (47), 41 (36), 154 (35), 121 (31)...))	46.26	1918	1.52	1.42	2121	37.62	
Unknown (m/z = 81, 205 (67), 121 (55), 69 (55), 93 (53), 41 (44)... 290? (8))	47.26	1958	0.17				
Unknown (m/z = 81, 137 (72), 69 (61), 95 (48), 41 (36)...))	47.32	1960	0.28				
Unknown (m/z = 137, 81 (97), 69 (67), 95 (52), 41 (42), 183 (32)...))	47.59	1971	0.33				
Unknown (m/z = 81, 137 (58), 95 (57), 69 (55)... 223 (14)...))	49.89	2069	0.10				
Total identified			93.92%	90.34%			

*: 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 : Clear liquid

Refractive index : 1.4543 \pm 0.0003 (20 °C)

CONCLUSION

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



