



PLANT THERAPY

100% PURE ESSENTIAL OILS

## GC/MS BATCH NUMBER: E10106

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**ESSENTIAL OIL:** EUCALYPTUS LEMON ORGANIC

**BOTANICAL NAME:** EUCALYPTUS CITIODORA

**ORIGIN:** MADAGASCAR

KEY CONSTITUENTS PRESENT IN THIS BATCH OF EUCALYPTUS LEMON ORGANIC OIL	%
CITRONELLAL	62.3
ISOPULEGOL	10.3
CITRONELLOL	9.0
iso-ISOPULEGOL	3.7
β-CARYOPHYLLENE	2.0
1,8-CINEOLE	1.9
para-MENTHANE-3,8-DIOL ISOMER I	1.2

Comments from Robert Tisserand: Characteristic, green-grassy odor profile, with constituents in expected amounts.

**Date :** December 15, 2016

*SAMPLE IDENTIFICATION*

**Internal code :** 16L06-PTH4-1-DM

**Customer identification :** Organic Eucalyptus Lemon - E1010685R

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

**Analysis date :** 2016-12-09

Checked and approved by :

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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.	
Isobutyl isobutyrate	3.20	915	0.07	0.06	1031	1.30	Aliphatic ester
$\alpha$ -Thujene	3.27	919	0.04	0.47	950	0.88*	Monoterpene
$\alpha$ -Pinene	3.37	925	0.42	[0.47]	950	0.88*	Monoterpene
Sabinene	4.09	969	0.07	0.08	1058	1.51	Monoterpene
$\beta$ -Pinene	4.15	972	0.72	0.74	1042	1.38	Monoterpene
Myrcene	4.43	990	0.13	0.13	1116	1.99	Monoterpene
$\alpha$ -Phellandrene	4.71	1005	0.03	0.02	1111	1.94	Monoterpene
$\alpha$ -Terpinene	4.90	1016	0.06	0.03	1124	2.09	Monoterpene
para-Cymene	5.10	1027	0.09	0.10	1206	3.03*	Monoterpene
Limonene	5.12	1029	0.51	2.50	1145	2.33*	Monoterpene
1,8-Cineole	5.18	1032	1.86	[2.50]	1145	2.33*	Monoterp. ether
<i>cis</i> - $\beta$ -Ocimene	5.38	1043	0.10	0.23	1190	2.85*	Monoterpene
<i>trans</i> - $\beta$ -Ocimene	5.49	1049	0.03	[0.10]	1206	3.03*	Monoterpene
$\gamma$ -Terpinene	5.67	1059	0.22	[0.23]	1190	2.85*	Monoterpene
Bergamal	5.69	1060	0.10	0.12	1288	4.16	Aliphatic aldehyde
para-Mentha-3,8-diene	5.92	1072	0.22	0.23	1212	3.11	Monoterpene
Terpinolene	6.15	1084	0.24	0.24	1225	3.29	Monoterpene
Linalool	6.70	1109	0.10	9.36	1490	7.36*	Monoterp. alcohol
<i>cis</i> -Rose oxide	6.74	1110	0.07	0.06	1295	4.25	Monoterp. ether
<i>trans</i> -Rose oxide	7.09	1123	0.04	0.02	1306	4.40	Monoterp. ether
neo-Isopulegol	7.66	1145	0.12	0.17	1517	7.87	Monoterp. alcohol
iso-Isopulegol	7.88	1153	3.68	4.52	1477	7.12	Monoterp. alcohol
Isopulegol	7.96	1156	10.25	[9.36]	1490	7.36*	Monoterp. alcohol
Citronellal	8.15	1163	62.31	62.84	1426	6.15	Monoterp. aldehyde
neoiso-Isopulegol	8.44	1174	0.63				Monoterp. alcohol
Terpinen-4-ol	8.65	1182	0.19	2.74	1536	8.38*	Monoterp. alcohol
$\alpha$ -Terpineol	9.46	1206	0.27	0.23	1619	10.86*	Monoterp. alcohol
Nerol	10.63	1232	0.08	0.07	1721	15.23	Monoterp. alcohol
Citronellol	11.04	1241	8.96	9.28	1702	14.40	Monoterp. alcohol
Geraniol	11.96	1262	0.10	0.10	1771	18.05	Monoterp. alcohol
Geranial	12.62	1276	0.11	0.09	1664	12.71	Monoterp. aldehyde
Citronellyl acetate	17.15	1352	0.95	0.99	1603	10.39	Monoterp. ester
para-Menthane-3,8-diol isomer I	17.82	1362	1.22				Monoterp. alcohol
Citronellic acid	18.62	1374	0.71	0.76	2167	39.02	Monoterp. acid
Geranyl acetate	19.26	1384	0.04	0.09	1687	13.73	Monoterp. ester
para-Menthane-3,8-diol isomer II	19.84	1393	0.46				Monoterp. alcohol
$\beta$ -Caryophyllene	20.42	1400	1.95	[2.74]	1536	8.38*	Sesquiterpene
$\alpha$ -Humulene	23.17	1434	0.12	0.12	1586	9.85	Sesquiterpene
Germacrene D	25.38	1460	0.04	[0.23]	1619	10.86*	Sesquiterpene

$\alpha$ -Muurolene	27.43	1484	0.06	0.07	1646	11.93	Sesquiterpene
$\delta$ -Cadinene	29.11	1506	0.10	0.10	1667	12.88	Sesquiterpene
Caryophyllene oxide	33.68	1568	0.11	0.07	1853	22.93	Sesquiterp. ether
Unknown (m/z = 137, 81 (97), 95 (51), 69 (47), 41 (36), 154 (35), 121 (31)...) )	46.33	1921	0.44				
<b>Total identified</b>			<b>98.02%</b>	<b>96.63%</b>			

\*: 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 :** Faintly yellow liquid

**Refractive index :**  $1.4665 \pm 0.0003$  (20 °C)

#### CONCLUSION

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



