

ANALYSIS Lemon Tea Tree Essential Oil

Laboratoire
PhytoChemia





Date : June 1, 2017

SAMPLE IDENTIFICATION

Internal code : 17E19-FSE19-1-DM

Customer identification : Lemon Tea Tree - Lot #EA-030116

Type : Essential oil

Source : *Leptospermum petersonii*

Customer : Flowers Shining Everywhere Inc.



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 : 2017-05-25



Checked and approved by :

Alexis St-Gelais, M. Sc., chimiste



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IDENTIFIED COMPOUNDS

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.L.	%	%	R.L.	R.T.	
Prenol	1.52	786	0.02				Aliphatic alcohol
3-Methylpentanol	2.37	857	0.02	0.03	1257	4.35	Aliphatic alcohol
cis-Hex-3-en-1-ol	2.48	865	0.02	0.02	1340	5.61	Aliphatic alcohol
α -Thujene	3.31	922	0.01	0.01	947	1.11	Monoterpene
α -Pinene	3.41	928	0.22	0.21	937	1.07	Monoterpene
Sabinene	3.71	971	0.03	0.02	1050	1.83	Monoterpene
β -Pinene	4.19	975	0.16	0.15	1033	1.67	Monoterpene
Myrcene	4.46*	991	0.52	0.39	1111	2.38	Monoterpene
Dehydro-1,8-cineole	4.46*	991	[0.52]	0.11	1125	2.55	Monoterp. ether
6-Methyl-5-hepten-2-one	4.52	995	0.17	0.18	1270	4.55	Aliphatic ketone
Limonene	5.15	1029	0.07	0.05	1135	2.69	Monoterpene
1,8-Cineole	5.21	1033	0.19	0.18	1140	2.75	Monoterp. ether
cis- β -Ocimene	5.34	1040	0.05	0.06	1201	3.56	Monoterpene
trans- β -Ocimene	5.51	1049	0.04	0.03	1195	3.47	Monoterpene
Bergamot	5.71*	1060	0.10	0.10	1287	4.79	Aliphatic aldehyde
γ -Terpinene	5.71*	1060	[0.10]	0.03	1181	3.29	Monoterpene
Acetophenone	5.95	1079	0.03	0.02	1565	10.94	Simple phenolic
para-Mentha-3,8-diene	6.05	1078	0.01	0.02	1216	3.77	Monoterpene
Rose furan	6.50	1102	0.02	0.01	1351	5.77	Monoterp. ether
Unalool	6.62	1107	0.90	3.48	1486	8.47*	Monoterp. alcohol
cis-Rose oxide	6.76	1112	0.05				Monoterp. ether
trans-Rose oxide	7.09	1124	0.01	0.01	1299	4.97	Monoterp. ether
trans-para-Mentha-2,8-dien-1-ol	7.12	1125	0.04	0.05	1548	10.31	Monoterp. alcohol
cis-para-Mentha-2,8-dien-1-ol	7.54	1140	0.02	28.38	1598	12.16*	Monoterp. alcohol
Isopulegol	7.76	1148	2.56	[3.48]	1486	8.47*	Monoterp. alcohol
para-Mentha-3-en-8-ol	7.83	1151	0.02	0.02	1578	11.41	Monoterp. alcohol
Citronellal	8.02	1158	20.48	18.85	1417	6.83	Monoterp. aldehyde
(Z)-Isocitral	8.21	1165	0.31	[3.48]	1486	8.47*	Monoterp. aldehyde
Iso-isopulegol	8.34	1169	0.15	[3.48]	1486	8.47*	Monoterp. alcohol
neoisopulegol	8.59	1179	0.09				Monoterp. alcohol
Terpinen-4-ol	8.75	1184	0.13	0.17	1535	9.84	Monoterp. alcohol
(E)-Isocitral	8.81	1187	0.58	0.46	1495	8.69	Monoterp. aldehyde
α -Terpineol	9.32	1203	0.06	0.14	1618	12.92*	Monoterp. alcohol
trans-Isopiperitenol	9.43	1206	0.29				Monoterp. alcohol
cis-Isopiperitenol	10.10	1220	0.51				Monoterp. alcohol
Citronellol	10.90	1238	3.17	3.22	1701	17.15*	Monoterp. alcohol
Neral	11.30	1247	27.83	[28.38]	1598	12.16*	Monoterp. aldehyde
Geraniol	11.90	1260	2.11	2.22	1774	21.64	Monoterp. alcohol
Geranial	12.88	1282	33.82	34.43	1650	14.50	Monoterp. aldehyde

Methyl geranate	15.33	1325	0.02	[0.14]	1618	12.92*	Monoterp. ester
para-Menthane-3,8-diol isomer I	16.39	1341	0.36				Monoterp. alcohol
Citronellyl acetate	17.13	1352	0.25	0.24	1600	12.22	Monoterp. ester
Eugenol	17.30	1355	0.18	0.18	2048	37.67	Phenylpropanoid
para-Menthane-3,8-diol isomer II	18.66	1376	0.24				Monoterp. alcohol
β -Elemene	18.79	1378	0.07	0.05	1529	9.63	Sesquiterpene
Geranyl acetate	19.22	1384	0.19	0.17	1682	16.20	Monoterp. ester
β -Caryophyllene	20.44	1402	0.20	0.24	1514	9.12	Sesquiterpene
Aromadendrene	21.81	1419	0.03	0.04	1524	9.46	Sesquiterpene
α -Humulene	23.20	1435	0.02	[28.38]	1598	12.16*	Sesquiterpene
allo-Aromadendrene	23.47	1438	0.07	0.09	1553	10.53	Sesquiterpene
Germacrene D	25.39	1462	0.03	0.04	1608	12.54	Sesquiterpene
Bicyclogermacrene	26.63	1476	0.23	0.18	1638	13.89	Sesquiterpene
α -Muurolene	27.53	1487	0.03	0.06	1653	14.66	Sesquiterpene
(E,E)- α -Farnesene	28.89	1504	0.05	[3.22]	1701	17.15*	Sesquiterpene
δ -Cadinene	29.10	1507	0.06	0.05	1665	15.29	Sesquiterpene
trans-Cadina-1(6),4-diene	32.76	1558	0.05	[28.38]	1598	12.16*	Sesquiterpene
Spathulenol	33.62	1570	0.15	0.13	2013	36.26	Sesquiterp. alcohol
Globulol	34.04	1576	0.05	0.04	1961	33.98	Sesquiterp. alcohol
Viridiflorol	34.52	1583	0.02				Sesquiterp. alcohol
Unknown (m/z = 137, 81 (97), 95 (51), 69 (47), 41 (36), 154 (35), 121 (31)...) (xx)	46.33	1923	0.20	0.23	2097	39.16	Oxygenated diterp.
Unknown (m/z = 81, 137 (72), 69 (61), 95 (48), 41 (36)...) (xx)	47.47	1968	0.14				Oxygenated diterp.
Total identified			97.12%			94.55%	

*: 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: Light yellow liquid

Refractive index: 1.4775 \pm 0.0003 (20 °C)

CONCLUSION

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



