



PLANT THERAPY
100% PURE ESSENTIAL OILS

GC/MS BATCH NUMBER: LM0101

ESSENTIAL OIL: LAVENDER FINE ORGANIC
BOTANICAL NAME: LAVANDULA ANGUSTIFOLIA
ORIGIN: FRANCE

KEY CONSTITUENTS PRESENT IN THIS BATCH OF OIL	%
LINALYL ACETATE	33.7
LINALOOL	31.3
β -CARYOPHYLLENE + cis- α -BERGAMOTENE	3.6
cis- β -OCIMENE	3.4
trans- β -OCIMENE	3.1
TERPINEN-4-ol	3.0
LAVANDULYL ACETATE	3.0
trans- β -FARNESENE	2.4
OCTAN-3-ONE	1.5
α -TERPINEOL	1.1
BORNEOL	1.0

Comments from Robert Tisserand: Excellent sweet-woody-floral odor quality. All thirteen key ISO constituents for French spontaneous (high altitude/fine) Lavender oil are within range.

Date : March 17, 2017

SAMPLE IDENTIFICATION

Internal code : 17C01-PTH16-1-DM

Customer identification : Org Lavender Fine - LM010169R

Type : Essential oil

Source : *Lavandula angustifolia*

Customer : Plant Therapy

ANALYSIS

Method : PC-PA-001-15E06, "Analysis of the composition of a liquid essential oil by GC-FID" (in French).

Analyst : Benoit Roger Ph. D.

Analysis date : 2017-03-15

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.	
Methyl hexyl ether	1.93	823	0.09	0.08	853	0.81	Aliphatic ether
<i>cis</i> -Hex-3-en-1-ol	2.44	862	0.09	0.07	1329	5.58	Aliphatic alcohol
Hexanol	2.64	878	0.14	0.15	1304	5.20	Aliphatic alcohol
Tricyclene	3.21	916	0.02	0.02	923	1.08	Monoterpene
α -Thujene	3.29	921	0.07	0.08	959	1.23	Monoterpene
α -Pinene	3.40	928	0.16	0.15	949	1.18	Monoterpene
Camphene	3.68*	944	0.16	0.15	1000	1.48	Monoterpene
α -Fenchene	3.68*	944	[0.16]	0.01	979	1.31	Monoterpene
Sabinene	4.11	970	0.04	0.04	1060	2.01	Monoterpene
β -Pinene	4.17	974	0.06	0.05	1042	1.84	Monoterpene
Myrcene	4.45*	990	0.93	0.56	1118	2.59	Monoterpene
Octen-3-ol	4.45*	990	[0.93]	0.33	1404	6.77	Aliphatic alcohol
Octan-3-one	4.48	992	1.54	4.49	1205	3.75*	Aliphatic ketone
Butyl butyrate	4.67	1003	0.09				Aliphatic ester
Octan-3-ol	4.71*	1005	0.42	0.27	1348	5.89	Aliphatic alcohol
α -Phellandrene	4.71*	1005	[0.42]	0.02	1111	2.50	Monoterpene
Δ 3-Carene	4.71*	1005	[0.42]	0.11	1096	2.32	Monoterpene
Hexyl acetate	4.97	1019	0.48	0.52	1225	4.03*	Aliphatic ester
para-Cymene	5.08	1026	0.15	0.20	1211	3.84	Monoterpene
β -Phellandrene	5.13*	1028	0.56	0.81	1149	2.99*	Monoterpene
Limonene	5.13*	1028	[0.56]	0.32	1143	2.91	Monoterpene
1,8-Cineole	5.19	1032	0.59	[0.81]	1149	2.99*	Monoterp. ether
<i>cis</i> - β -Ocimene	5.32	1039	3.38	3.42	1190	3.54*	Monoterpene
<i>trans</i> - β -Ocimene	5.50	1048	3.06	[4.49]	1205	3.75*	Monoterpene
γ -Terpinene	5.67	1058	0.11	[3.42]	1190	3.54*	Monoterpene
<i>cis</i> -Linalool oxide (fur.)	5.94	1073	0.20	0.22	1381	6.41	Monoterp. alcohol
<i>cis</i> -Sabinene hydrate	5.97	1074	0.04	0.21	1410	6.91*	Monoterp. alcohol
Terpinolene	6.15	1084	0.11	[0.52]	1225	4.03*	Monoterpene
<i>trans</i> -Linalool oxide (fur.)	6.26	1090	0.14	[0.21]	1410	6.91*	Monoterp. alcohol
para-Cymenene	6.36	1095	0.01	0.33	1368	6.21*	Monoterpene
Linalool	6.70	1109	31.31	31.32	1506	9.24	Monoterp. alcohol
Octen-3-yl acetate	6.77	1112	0.98	0.97	1333	5.65	Aliphatic ester
Octan-3-yl acetate	7.00	1120	0.16	0.18	1294	5.04	Aliphatic ester
<i>cis</i> -para-Menth-2-en-1-ol	7.14	1126	0.05	0.03	1495	8.95*	Monoterp. alcohol
<i>trans</i> -Pinocarveol	7.59	1142	0.02	0.01	1577	11.86	Monoterp. alcohol
Camphor	7.68	1145	0.37	0.32	1427	7.32	Monoterp. ketone
Lavandulol	8.21	1165	0.94	3.34	1619	13.52*	Monoterp. alcohol
Borneol	8.44	1173	1.00	1.42	1623	13.75*	Monoterp. alcohol
Terpinen-4-ol	8.66	1181	2.98	2.92	1534	10.23	Monoterp. alcohol
Cryptone	9.02	1194	0.14	0.15	1569	11.54	Monoterp. ketone
para-Cymen-8-ol	9.12*	1198	0.41	0.12	1771	22.32	Monoterp. alcohol

Hexyl butyrate	9.12*	1198	[0.41]	[0.33]	1368	6.21*	Aliphatic ester
α -Terpineol	9.24	1201	1.08	1.08	1629	14.01	Monoterp. alcohol
Bornyl formate	9.99	1218	0.05	0.05	1453	7.95	Monoterp. ester
Unknown (m/z = 43, 71 (67), 68 (65), 81 (54), 93 (37), 67 (37), 121 (34)... 154? (1))	10.24	1224	0.06	[0.03]	1495	8.95*	
Nerol	10.39	1227	0.21	0.22	1735	19.90	Monoterp. alcohol
Neral	11.12	1243	0.06	0.05	1597	12.58	Monoterp. aldehyde
Linalyl acetate	11.51	1252	33.66	34.39	1514	9.48*	Monoterp. ester
Geraniol	11.61	1254	0.53	0.50	1788	23.36	Monoterp. alcohol
Bornyl acetate	12.80	1280	0.10	0.08	1515	9.53	Monoterp. ester
Lavandulyl acetate	13.12	1287	2.98	3.05	1553	10.94	Monoterp. ester
α -Copaene	17.47	1358	0.01	0.01	1433	7.48	Sesquiterpene
Neryl acetate	17.64	1360	0.34	0.33	1662	15.80	Monoterp. ester
β -Elemene	18.70	1376	0.05	3.64	1526	9.92*	Sesquiterpene
Geranyl acetate	19.12	1383	0.60	0.64	1695	17.51	Monoterp. ester
Sesquithujene	19.90	1394	0.03	0.49	1517	9.60*	Sesquiterpene
β -Caryophyllene	20.37*	1401	3.63	[3.64]	1526	9.92*	Sesquiterpene
<i>cis</i> - α -Bergamotene	20.37*	1401	[3.63]	[34.39]	1514	9.48*	Sesquiterpene
α -Santalene	20.72	1405	0.44	[0.49]	1517	9.60*	Sesquiterpene
Aromadendrene	21.90	1420	0.12	0.13	1529	10.04	Sesquiterpene
α -Humulene	23.03	1433	0.16	0.14	1582	12.04	Sesquiterpene
allo-Aromadendrene	23.76	1442	0.09	0.12	1560	11.20	Sesquiterpene
<i>trans</i> - β -Farnesene	24.29	1448	2.35	[3.34]	1619	13.52*	Sesquiterpene
γ -Muuroleone	24.87	1455	0.01	0.01	1603	12.81	Sesquiterpene
Germacrene D	25.23	1460	0.48	[1.42]	1623	13.75*	Sesquiterpene
Viridiflorene	25.94	1468	0.05	0.06	1613	13.22	Sesquiterpene
γ -Cadinene	28.22	1496	0.09	0.09	1669	16.11	Sesquiterpene
β -Bisabolene	28.47	1498	0.03	0.05	1657	15.56	Sesquiterpene
δ -Cadinene	29.29	1510	0.03	0.05	1677	16.54*	Sesquiterpene
<i>trans</i> - γ -Bisabolene	29.79	1517	0.03	[0.05]	1677	16.54*	Sesquiterpene
Caryophyllene oxide	33.42	1567	0.34	0.30	1850	27.79	Sesquiterp. ether
τ -Cadinol	37.11	1633	0.06	0.06	2077	39.00	Sesquiterp. alcohol
Total identified			98.61%	98.93%			

*: 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 : 1.4595 ± 0.0003 (20 °C)

CONCLUSION

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



