



PLANT THERAPY
100% PURE ESSENTIAL OILS

GC/MS BATCH NUMBER: L50105

ESSENTIAL OIL: LAVENDER ORGANIC
BOTANICAL NAME: LAVANDULA ANGUSTIFOLIA
ORIGIN: BULGARIA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF LAVENDER ORGANIC OIL	%
LINALOOL	32.4
LINALYL ACETATE	29.9
TERPINEN-4-ol	4.5
cis- β -OCIMENE	4.8
LAVANDULYL ACETATE	3.4
trans- β -OCIMENE	3.2
β -CARYOPHYLLENE	2.9
trans- β -FARNESENE	2.5
OCTAN-3-one	1.5
α -TERPINEOL	1.4
Octen-3-yl ACETATE	1.1

Comments from Robert Tisserand: Excellent lavender flower tonality. Clearly meets 11 of 13 ISO standards for Bulgarian, with both 3-octanone and linalyl acetate being right on the edge - not a concern.

Date : February 16, 2017

SAMPLE IDENTIFICATION

Internal code : 17A30-PTH16-1-DM

Customer identification : Organic Lavender - Bulgaria - L5010567R

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 : Sylvain Mercier, M. Sc., chimiste

Analysis date : 2017-02-13

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.	
Hexan-2-ol	1.88	819	0.02				Aliphatic alcohol
Methyl hexyl ether	1.94	824	0.06	0.06	858	0.83	Aliphatic ether
<i>cis</i> -Hex-3-en-1-ol	2.50	867	0.02	0.01	1328	5.73	Aliphatic alcohol
Hexanol	2.68	880	0.09	0.11	1303	5.33	Aliphatic alcohol
Tricyclene	3.21	917	0.02	0.01	929	1.12	Monoterpene
α -Thujene	3.29	921	0.09	0.09	963	1.27	Monoterpene
α -Pinene	3.40	928	0.19	0.18	952	1.22	Monoterpene
Camphene	3.68*	944	0.13	0.12	1000	1.53	Monoterpene
α -Fenchene	3.68*	944	[0.13]	0.01	980	1.37	Monoterpene
Sabinene	4.11	970	0.03	0.03	1061	2.08	Monoterpene
β -Pinene	4.17	974	0.04	0.03	1042	1.91	Monoterpene
Octen-3-ol	4.41	988	0.19	0.17	1406	7.09	Aliphatic alcohol
Myrcene	4.44	990	0.83	0.74	1118	2.67	Monoterpene
Octan-3-one	4.48	992	1.48	1.40	1202	3.81	Aliphatic ketone
Butyl butyrate	4.67	1003	0.12				Aliphatic ester
α -Phellandrene	4.71*	1006	0.38	0.03	1111	2.58	Monoterpene
Δ 3-Carene	4.71*	1006	[0.38]	0.09	1097	2.39	Monoterpene
Octan-3-ol	4.71*	1006	[0.38]	0.25	1346	6.02	Aliphatic alcohol
α -Terpinene	4.90	1016	0.05	0.05	1125	2.76	Monoterpene
Hexyl acetate	4.97	1020	0.61	0.70	1224	4.14*	Aliphatic ester
para-Cymene	5.08	1025	0.18	0.25	1211	3.94	Monoterpene
Limonene	5.12	1028	0.37	0.34	1142	3.00	Monoterpene
β -Phellandrene	5.15	1029	0.21	0.85	1149	3.09*	Monoterpene
1,8-Cineole	5.20	1032	0.67	[0.85]	1149	3.09*	Monoterp. ether
<i>cis</i> - β -Ocimene	5.32	1039	4.75	4.59	1191	3.64	Monoterpene
<i>trans</i> - β -Ocimene	5.49	1048	3.24	3.19	1205	3.85	Monoterpene
γ -Terpinene	5.67	1058	0.17	0.20	1193	3.67	Monoterpene
<i>cis</i> -Linalool oxide (fur.)	5.95	1073	0.19	0.16	1379	6.56	Monoterp. alcohol
<i>cis</i> -Sabinene hydrate	6.04	1078	0.01	0.01	1403	7.01	Monoterp. alcohol
Terpinolene	6.14	1084	0.16	[0.70]	1224	4.14*	Monoterpene
<i>trans</i> -Linalool oxide (fur.)	6.26	1090	0.09	0.23	1400	6.94	Monoterp. alcohol
para-Cymenene	6.32	1093	0.01	0.01	1374	6.49	Monoterpene
Linalool	6.67	1108	32.38	32.61	1502	9.52*	Monoterp. alcohol
Octen-3-yl acetate	6.76	1112	1.07	0.94	1330	5.77	Aliphatic ester
Octan-3-yl acetate	7.00	1120	0.18	0.20	1292	5.15	Aliphatic ester
<i>cis</i> -para-Menth-2-en-1-ol	7.13	1125	0.07	[32.61]	1502	9.52*	Monoterp. alcohol
<i>trans</i> -para-Menth-2-en-1-ol	7.54	1140	0.01	0.01	1572	12.18	Monoterp. alcohol
Camphor	7.67	1145	0.27	0.29	1424	7.52	Monoterp. ketone
Lavandulol	8.19	1164	0.90	0.88	1613	13.99	Monoterp. alcohol
Borneol	8.39	1171	0.65	0.60	1618	14.23	Monoterp. alcohol
Terpinen-4-ol	8.64	1181	4.48	4.40	1529	10.56	Monoterp. alcohol

Cryptone	9.03	1195	0.13	0.13	1565	11.90	Monoterp. ketone
Hexyl butyrate	9.12	1198	0.40	0.36	1365	6.33	Aliphatic ester
α -Terpineol	9.20	1201	1.37	1.42	1623	14.49	Monoterp. alcohol
Nerol	10.34	1226	0.25	0.25	1728	20.57	Monoterp. alcohol
Neral	11.09	1242	0.06	0.04	1606	13.61	Monoterp. aldehyde
Linalyl acetate	11.48	1251	29.85	30.43	1507	9.73	Monoterp. ester
Geraniol	11.59	1253	0.65	0.64	1781	24.10	Monoterp. alcohol
Bornyl acetate	12.79	1280	0.13	0.10	1510	9.81	Monoterp. ester
Lavandulyl acetate	13.11	1287	3.44	3.48	1548	11.27	Monoterp. ester
α -Copaene	17.47	1357	0.01	0.02	1427	7.61	Sesquiterpene
Neryl acetate	17.63	1360	0.40	0.42	1656	16.30*	Monoterp. ester
β -Elemene	18.69	1376	0.05	2.99	1519	10.18*	Sesquiterpene
Geranyl acetate	19.11	1382	0.70	0.71	1690	18.05	Monoterp. ester
Hexyl hexanoate	19.63	1390	0.06	0.05	1593	12.95	Aliphatic ester
β -Caryophyllene	20.34*	1401	3.01	[2.99]	1519	10.18*	Sesquiterpene
<i>cis</i> - α -Bergamotene	20.34*	1401	[3.01]	0.08	1508	9.76	Sesquiterpene
α -Santalene	20.71	1405	0.34	0.41	1511	9.85	Sesquiterpene
Aromadendrene	21.89	1420	0.10	0.10	1523	10.32	Sesquiterpene
α -Humulene	23.01	1433	0.11	0.11	1578	12.40	Sesquiterpene
allo-Aromadendrene	23.75	1442	0.08	0.10	1554	11.51	Sesquiterpene
<i>trans</i> - β -Farnesene	24.27	1448	2.52	2.70	1612	13.91*	Sesquiterpene
Germacrene D	25.20	1459	0.33	[2.70]	1612	13.91*	Sesquiterpene
γ -Cadinene	28.19	1495	0.07	0.04	1671	17.07	Sesquiterpene
β -Bisabolene	28.43	1498	0.03	[0.42]	1656	16.30*	Sesquiterpene
Caryophyllene oxide	33.37	1567	0.23	0.22	1842	28.52	Sesquiterp. ether
τ -Cadinol	37.04	1631	0.04	0.03	2066	39.38	Sesquiterp. alcohol
Total identified			98.77%	98.67%			

*: 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 : 1.4610 \pm 0.0003 (20 °C)

CONCLUSION

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



