

GC/MS BATCH NUMBER: LK0100

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

KEY CONSTITUENTS PRESENT IN THIS BATCH OF LAVENDER FINE OIL	%
LINALYL ACETATE	37.8
LINALOOL	30.2
cis- β -OCIMENE	3.6
trans- β -OCIMENE	3.2
TERPINEN-4-OL	2.9
LAVANDULYL ACETATE	2.7
trans- β -FARNESENE	1.7
BORNEOL	1.1
LAVANDULOL	0.7
3-OCTANONE	0.7
α -TERPINEOL	0.6
1,8-CINEOLE	0.5
CAMPHOR	0.4
LIMONENE	0.2
β -PHELLANDRENE	0.1

Comments from Robert Tisserand: Excellent fine, rich Lavender odor. Meets 12 of 13 ISO key constituents for Bulgarian Lavender oil, with cis-b-ocimene marginally low – not a problem.

Date : June 6, 2016

SAMPLE IDENTIFICATION

Internal code : 16E19-PTH3-1-SM

Customer identification : Lavander Fine - France - LK010065

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 : 2016-06-06

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.	
Isovaleral	0.52	567	0.01	0.02	786	0.51	Aliphatic aldehyde
Hexan-2-ol	1.80	814	0.03				Aliphatic alcohol
Methyl hexyl ether	1.88	820	0.11	0.10	857	0.63	Aliphatic ether
cis-Hex-3-en-1-ol	2.40	861	0.04	0.96	1336	4.92*	Aliphatic alcohol
Hexanol	2.60	878	0.11	0.16	1304	4.45	Aliphatic alcohol
Tricyclene	3.15	917	0.02	0.02	931	0.83	Monoterpene
α-Thujene	3.23	922	0.09	0.08	959	0.94	Monoterpene
α-Pinene	3.34	928	0.18	0.16	951	0.91	Monoterpene
Camphene	3.62	945	0.19	0.16	1005	1.14	Monoterpene
Butyl isobutyrate	3.83	958	0.01	0.02	1100	1.89	Aliphatic ester
Sabinene	4.05	971	0.04	0.03	1060	1.58	Monoterpene
β-Pinene	4.11	975	0.09	0.08	1043	1.44	Monoterpene
Octan-3-one	4.38	992	0.75	0.73	1202	3.06*	Aliphatic ketone
Myrcene	4.42*	994	0.80	0.42	1119	2.08	Monoterpene
Octen-3-ol	4.42*	994	[0.80]	0.30	1404	5.90	Aliphatic alcohol
Butyl butyrate	4.60	1005	0.11				Aliphatic ester
Octan-3-ol	4.66*	1008	0.28	0.20	1353	5.15	Aliphatic alcohol
Δ3-Carene	4.66*	1008	[0.28]	0.08	1094	1.84	Monoterpene
α-Phellandrene	4.66*	1008	[0.28]	0.02	1111	2.01	Monoterpene
α-Terpinene	4.84	1018	0.03	0.03	1125	2.16	Monoterpene
Hexyl acetate	4.91	1022	0.44	0.46	1226	3.37*	Aliphatic ester
para-Cymene	5.02	1028	0.17	0.26	1213	3.18	Monoterpene
Limonene	5.06	1030	0.22	0.18	1143	2.37	Monoterpene
β-Phellandrene	5.09	1032	0.11	0.64	1148	2.43*	Monoterpene
1,8-Cineole	5.13	1034	0.49	[0.64]	1148	2.43*	Monoterp. ether
cis-β-Ocimene	5.25	1041	3.58	3.54	1192	2.94	Monoterpene
trans-β-Ocimene	5.43	1051	3.22	3.12	1208	3.13	Monoterpene
Lavender lactone	5.52	1055	0.08	0.08	1604	10.70	Lactone
γ-Terpinene	5.61	1060	0.10	[0.73]	1202	3.06*	Monoterpene
cis-Linalool oxide (fur.)	5.88	1076	0.23	0.23	1383	5.60	Monoterp. alcohol
cis-Sabinene hydrate	5.92	1078	0.07	0.17	1411	6.01*	Monoterp. alcohol
Terpinolene	6.00	1082	0.01	[0.46]	1226	3.37*	Monoterpene
trans-Linalool oxide (fur.)	6.08	1087	0.08	[0.17]	1411	6.01*	Monoterp. alcohol
para-Cymenene	6.19	1093	0.18	0.40	1375	5.49*	Monoterpene
α-Pinene oxide	6.29	1098	0.02	0.02	1306	4.48	Monoterp. ether
Linalool	6.62	1112	30.23	30.06	1505	7.80	Monoterp. alcohol
Octen-3-yl acetate	6.69	1114	0.98	[0.96]	1336	4.92*	Aliphatic ester
Octan-3-yl acetate	6.91	1123	0.07	0.09	1298	4.36	Aliphatic ester
trans-Pinocarveol	7.41	1141	0.02	0.02	1571	9.67	Monoterp. alcohol
Camphor	7.59	1148	0.43	0.39	1426	6.30	Monoterp. ketone
Lavandulol	8.12	1168	0.67	0.70	1618	11.13	Monoterp. alcohol

Borneol	8.35	1176	1.05	1.10	1629	11.61	Monoterp. alcohol
Terpinen-4-ol	8.56	1184	2.93	3.43	1535	8.58*	Monoterp. alcohol
Hexyl butyrate	8.99	1201	0.44	[0.40]	1375	5.49*	Aliphatic ester
α -Terpineol	9.15	1205	0.57	1.26	1625	11.42*	Monoterp. alcohol
γ -Terpineol	9.28	1208	0.02	0.02	1634	11.87	Monoterp. alcohol
Nerol	10.28	1230	0.11	0.12	1732	16.46	Monoterp. alcohol
Linalyl acetate	11.34	1254	37.75	38.38	1515	7.99	Monoterp. ester
Geraniol	11.47	1257	0.30	0.27	1783	19.48	Monoterp. alcohol
iso-Isopulegyl acetate	12.62	1283	0.11	[3.43]	1535	8.58*	Monoterp. ester
Lavandulyl acetate	12.94	1290	2.74	2.75	1554	9.17	Monoterp. ester
α -Cubebene	15.58	1335	0.06	0.08	1412	6.03	Sesquiterpene
Neryl acetate	17.43	1364	0.21	0.22	1663	13.12	Monoterp. ester
β -Elemene	18.47	1380	0.04	3.93	1531	8.45*	Sesquiterpene
Geranyl acetate	18.90	1386	0.40	0.39	1693	14.54	Monoterp. ester
β -Caryophyllene	20.13*	1405	4.24	[3.93]	1531	8.45*	Sesquiterpene
<i>cis</i> - α -Bergamotene	20.13*	1405	[4.24]	0.25	1516	8.03	Sesquiterpene
α -Santalene	20.48	1409	0.53	0.66	1523	8.22	Sesquiterpene
Aromadendrene	21.65	1423	0.12	[3.43]	1535	8.58*	Sesquiterpene
α -Humulene	22.80	1437	0.17	0.13	1590	10.26	Sesquiterpene
allo-Aromadendrene	23.52	1446	0.11	0.15	1568	9.58	Sesquiterpene
<i>trans</i> - β -Farnesene	24.01	1452	1.68	1.53	1623	11.35	Sesquiterpene
Germacrene D	24.98	1464	0.46	[1.26]	1625	11.42*	Sesquiterpene
δ -Cadinene	27.97	1500	0.08	0.14	1674	13.62	Sesquiterpene
Caryophyllene oxide	33.22	1571	0.41	0.32	1850	23.73	Sesquiterp. ether
τ -Cadinol	37.00	1638	0.08	0.06	2073	36.72	Sesquiterp. alcohol
Total identified			98.9%	99.12%			

*: 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 \pm 0.0003 (20 °C)

CONCLUSION

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



