

Date : December 13, 2017

SAMPLE IDENTIFICATION

Internal code : 17K28-ALZ8-1-CC

Customer identification : Lavander - A1061016

Type : Essential oil

Source : *Lavandula angustifolia*

Customer : Organic Aromas

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 : Benoit Roger Ph. D.

Analysis date : 2017-12-13

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.	
Ethanol	0.37	635	0.05	0.02	767	0.66	Aliphatic alcohol
2-Methyl-3-buten-2-ol	0.55	658	0.03	0.18	946	1.12*	Aliphatic alcohol
Hexan-2-ol	1.86	816	0.01				Aliphatic alcohol
Methyl hexyl ether	1.93	821	0.09	0.08	848	0.77	Aliphatic ether
cis-Hex-3-en-1-ol	2.50	865	0.06	0.11	1319	5.35	Aliphatic alcohol
Hexanol	2.71	881	0.11	0.09	1293	4.96	Aliphatic alcohol
Tricyclene	3.23	915	0.02	0.02	920	1.02	Monoterpene
α-Thujene	3.31	920	0.12	0.20	957	1.16	Monoterpene
α-Pinene	3.42	926	0.26	[0.18]	946	1.12*	Monoterpene
Camphene	3.71	943	0.16	0.15	1001	1.40	Monoterpene
Thuja-2,4(10)-diene	3.80	949	tr	0.05	1054	1.92*	Monoterpene
Sabinene	4.14	969	0.03	[0.05]	1054	1.92*	Monoterpene
β-Pinene	4.20	972	0.03	0.03	1039	1.75	Monoterpene
Myrcene	4.48	989	0.69	0.71	1117	2.50*	Monoterpene
Octan-3-one	4.52*	992	1.75	0.87	1198	3.57	Aliphatic ketone
Octen-3-ol	4.52*	992	[1.75]	0.46	1395	6.55	Aliphatic alcohol
Butyl butyrate	4.68	1001	0.08				Aliphatic ester
α-Phellandrene	4.75*	1005	0.14	0.02	1110	2.41	Monoterpene
Δ3-Carene	4.75*	1005	[0.14]	0.11	1080	2.23	Monoterpene
Octan-3-ol	4.81	1008	0.20	0.27	1342	5.73	Aliphatic alcohol
α-Terpinene	4.94	1015	0.04	[0.71]	1117	2.50*	Monoterpene
Hexyl acetate	5.00	1018	0.45	0.58	1222	3.90*	Aliphatic ester
para-Cymene	5.14	1026	0.21	3.70	1204	3.64*	Monoterpene
Limonene	5.17	1027	0.32	0.99	1144	2.86*	Monoterpene
β-Phellandrene	5.20	1029	0.10	[0.99]	1144	2.86*	Monoterpene
1,8-Cineole	5.23	1030	0.59	[0.99]	1144	2.86*	Monoterp. ether
cis-β-Ocimene	5.37	1038	6.03	5.90	1188	3.43*	Monoterpene
trans-β-Ocimene	5.54	1048	2.91	[3.70]	1204	3.64*	Monoterpene
γ-Terpinene	5.72	1057	0.14	[5.90]	1188	3.43*	Monoterpene
cis-Linalool oxide (fur.)	6.00	1072	0.22	0.22	1373	6.20	Monoterp. alcohol
cis-Sabinene hydrate	6.07	1076	0.09	0.28	1403	6.67*	Monoterp. alcohol
Terpinolene	6.19	1083	0.11	[0.58]	1222	3.90*	Monoterpene
trans-Linalool oxide (fur.)	6.32	1090	0.17	[0.28]	1403	6.67*	Monoterp. alcohol
para-Cymenene	6.42	1095	0.05	0.29	1367	6.10*	Monoterpene
Linalool	6.84*	1111	32.56	31.22	1497	8.86*	Monoterp. alcohol
Octen-3-yl acetate	6.84*	1111	[32.56]	1.06	1330	5.52	Aliphatic ester
Octan-3-yl acetate	7.04	1119	0.10	0.24	1295	4.99	Aliphatic ester
cis-para-Menth-2-en-1-ol	7.23	1125	0.05	[31.22]	1497	8.86*	Monoterp. alcohol
trans-para-Menth-2-en-1-ol	7.75	1144	0.07	0.14	1558	10.97*	Monoterp. alcohol
Camphor	7.79	1146	0.21	0.22	1420	7.06*	Monoterp. ketone
Lavandulol	8.40	1168	1.42	1.48	1611	12.90	Monoterp. alcohol

Borneol	8.70	1179	0.48	4.44	1618	13.32*	Monoterp. alcohol
Terpinen-4-ol	8.88	1185	5.20	8.61	1526	9.80*	Monoterp. alcohol
Hexyl butyrate	9.19*	1197	0.44	[0.29]	1367	6.10*	Aliphatic ester
Cryptone	9.19*	1197	[0.44]	[0.14]	1558	10.97*	Monoterp. ketone
α-Terpineol	9.53	1205	1.35	[4.44]	1618	13.32*	Monoterp. alcohol
Bornyl formate	10.36	1223	0.11				Monoterp. ester
Nerol	10.68	1230	0.22	0.23	1724	18.99	Monoterp. alcohol
Linalyl acetate	11.61	1250	28.46	29.63	1509	9.17*	Monoterp. ester
Geraniol	11.91	1257	0.49	0.51	1775	22.35	Monoterp. alcohol
Bornyl acetate	12.93	1279	0.14	[29.63]	1509	9.17*	Monoterp. ester
Lavandulyl acetate	13.28	1287	4.08	4.18	1548	10.60	Monoterp. ester
α-Cubebene	15.98	1331	0.03	[0.28]	1403	6.67*	Sesquiterpene
α-Terpinyl acetate	16.62	1341	0.03	[4.44]	1618	13.32*	Monoterp. ester
α-Copaene	17.70	1357	0.02	[0.22]	1420	7.06*	Sesquiterpene
Neryl acetate	17.87	1360	0.38	0.40	1657	15.31*	Monoterp. ester
β-Elemene	18.90	1375	0.07	[8.61]	1526	9.80*	Sesquiterpene
Geranyl acetate	19.37	1382	0.64	0.69	1689	16.98	Monoterp. ester
Hexyl hexanoate	19.83	1389	0.05	0.10	1580	11.80*	Aliphatic ester
β-Caryophyllene	20.66	1401	3.22	[8.61]	1526	9.80*	Sesquiterpene
α-Santalene	20.98	1405	0.40	0.48	1515	9.39	Sesquiterpene
Aromadendrene	21.82	1415	0.02	[8.61]	1526	9.80*	Sesquiterpene
<i>trans</i> -α-Bergamotene	22.15	1419	0.12	[8.61]	1526	9.80*	Sesquiterpene
α-Humulene	23.41	1434	0.09	[0.10]	1580	11.80*	Sesquiterpene
allo-Aromadendrene	23.93	1440	0.03	[0.14]	1558	10.97*	Sesquiterpene
9-epi-β-Caryophyllene	24.08*	1442	0.11	[0.40]	1657	15.31*	Sesquiterpene
Coumarin	24.08*	1442	[0.11]	0.03	2252	43.68	Coumarin
<i>trans</i> -β-Farnesene	24.57	1448	2.33	[4.44]	1618	13.32*	Sesquiterpene
Germacrene D	25.63	1460	0.22	[4.44]	1618	13.32*	Sesquiterpene
β-Selinene	26.28	1468	0.05	[4.44]	1618	13.32*	Sesquiterpene
γ-Cadinene	28.70	1497	0.07	0.11	1666	15.80*	Sesquiterpene
β-Bisabolene	28.85	1499	0.03	[0.40]	1657	15.31*	Sesquiterpene
δ-Cadinene	29.30	1505	0.01	[0.11]	1666	15.80*	Sesquiterpene
Caryophyllene oxide	33.83	1569	0.30	0.27	1843	27.00	Sesquiterp. ether
τ-Cadinol	37.55	1638	0.02				Sesquiterp. alcohol
Total identified			98.88%	99.37%			

*: 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 : 1.4623 ± 0.0003 (20 °C)

CONCLUSION

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

17K28-ALZ8-1-CC_BP5



