

## GC/MS BATCH NUMBER: L50107

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

KEY CONSTITUENTS PRESENT IN THIS BATCH OF LAVENDER ORGANIC OIL	%
LINALOOL	30.9
LINALYL ACETATE	29.7
OCTAN-3-ONE	5.7
cis- $\beta$ -OCIMENE	5.0
TERPINEN-4-OL	4.9
trans- $\beta$ -OCIMENE	3.7
$\beta$ -CARYOPHYLLENE	3.3
LAVANDULYL ACETATE	3.0
trans- $\beta$ -FARNESENE	2.6
$\alpha$ -TERPINEOL	1.3

Comments from Robert Tisserand: Fine, dry, powdery odor profile. All thirteen key ISO constituents are within range.

**Date :** September 12, 2017

*SAMPLE IDENTIFICATION*

**Internal code :** 17I07-PTH2-1-DM

**Customer identification :** Lavender Organic - Bulgarian - L5010777R

**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).

Identifications double-checked by GC-MS

**Analyst :** Alexis St-Gelais, M. Sc., chimiste

**Analysis date :** 2017-09-07

Checked and approved by :

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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.	
2-Methyl-3-buten-2-ol	0.37	635	0.02				Aliphatic alcohol
Pentanal	0.55	658	0.01	0.01	790	0.70	Aliphatic aldehyde
Butyl acetate	1.86	816	0.02				Aliphatic ester
Methyl hexyl ether	1.93	822	0.12	0.11	845	0.82	Aliphatic ether
cis-Hex-3-en-1-ol	2.50	865	0.04	0.05	1323	5.62	Aliphatic alcohol
Hexanol	2.72	882	0.09	0.18	1292	5.13	Aliphatic alcohol
α-Thujene	3.31	920	0.13	0.36	953	1.25†	Monoterpene
α-Pinene	3.42	926	0.24	[0.36]	941	1.20†	Monoterpene
Camphene	3.71	943	0.15	0.12	992	1.51	Monoterpene
Sabinene	4.14	969	0.04	0.04	1058	2.05	Monoterpene
β-Pinene	4.20	973	0.04	0.03	1037	1.88	Monoterpene
Octan-3-one	4.53*	992	2.83	5.72	1205	3.83+*	Aliphatic ketone
Myrcene	4.53*	992	[2.83]	0.74	1113	2.65*	Monoterpene
Octen-3-ol	4.53*	992	[2.83]	0.21	1403	6.98*	Aliphatic alcohol
Butyl butyrate	4.69	1001	0.10				Aliphatic ester
Δ3-Carene	4.76*	1005	0.17	0.11	1091	2.37	Monoterpene
α-Phellandrene	4.76*	1005	[0.17]	0.03	1106	2.56	Monoterpene
Octan-3-ol	4.82	1008	0.30	0.39	1344	5.95*	Aliphatic alcohol
α-Terpinene	4.94	1015	0.06	[0.74]	1113	2.65*	Monoterpene
Hexyl acetate	5.01	1018	0.58	0.69	1223	4.10*	Aliphatic ester
para-Cymene	5.14	1026	0.14	[5.72]	1201	3.77+*	Monoterpene
Limonene	5.17	1027	0.34	1.28	1140	2.99†	Monoterpene
β-Phellandrene	5.20	1029	0.24	[1.28]	1144	3.04+*	Monoterpene
1,8-Cineole	5.24	1031	0.71	[1.28]	1144	3.04+*	Monoterp. ether
cis-β-Ocimene	5.37	1038	4.99	4.96	1191	3.62	Monoterpene
trans-β-Ocimene	5.55	1048	3.68	[5.72]	1205	3.83+*	Monoterpene
γ-Terpinene	5.73	1057	0.20	[5.72]	1201	3.77+*	Monoterpene
cis-Linalool oxide (fur.)	6.02	1073	0.14	0.17	1376	6.46	Monoterp. alcohol
cis-Sabinene hydrate	6.08	1077	0.08	0.22	1398	6.85	Monoterp. alcohol
Terpinolene	6.20	1083	0.11	[0.69]	1223	4.10*	Monoterpene
trans-Linalool oxide (fur.)	6.34	1091	0.10	[0.21]	1403	6.98*	Monoterp. alcohol
Linalool	6.85*	1112	32.31	30.89	1499	9.34	Monoterp. alcohol
Octen-3-yl acetate	6.85*	1112	[32.31]	0.93	1331	5.74	Aliphatic ester
Octan-3-yl acetate	7.06	1120	0.17	0.17	1299	5.24	Aliphatic ester
cis-para-Menth-2-en-1-ol	7.28	1127	0.02	0.02	1491	9.07	Monoterp. alcohol
trans-para-Menth-2-en-1-ol	7.65	1141	0.02	0.17	1561	11.63*	Monoterp. alcohol
Hexyl isobutyrate	7.78	1145	0.05				Aliphatic ester
Camphor	7.81	1147	0.20	0.21	1422	7.42	Monoterp. ketone
Lavandulol	8.41	1168	0.90	0.87	1612	13.79	Monoterp. alcohol
(3E,5Z)-1,3,5-Undecatriene	8.56	1174	0.07	[0.39]	1344	5.95*	Alkene
Borneol	8.71	1179	0.64	3.49	1615	13.94*	Monoterp. alcohol

Terpinen-4-ol	8.89	1186	4.91	8.12	1527	10.36†	Monoterp. alcohol
Hexyl butyrate	9.22*	1198	0.62	0.39	1367	6.32	Aliphatic ester
Cryptone	9.22*	1198	[0.62]	[0.17]	1561	11.63*	Monoterp. ketone
para-Cymen-8-ol	9.45	1203	0.04	0.60	1778	23.69*	Monoterp. alcohol
α-Terpineol	9.54	1205	1.25	1.56	1620	14.18*	Monoterp. alcohol
Bornyl formate	10.39	1224	0.07				Monoterp. ester
Nerol	10.71	1231	0.22	0.27	1726	20.19	Monoterp. alcohol
Linalyl formate	10.84	1233	0.03	0.04	1480	8.81	Monoterp. ester
Linalyl acetate	11.65	1251	29.69	30.24	1507	9.65	Monoterp. ester
Geraniol	11.94	1258	0.57	[0.60]	1778	23.69*	Monoterp. alcohol
Bornyl acetate	12.97	1280	0.12	[8.12]	1522	10.17†*	Monoterp. ester
Lavandulyl acetate	13.31	1288	3.04	3.12	1548	11.16	Monoterp. ester
α-Cubebene	16.04	1332	0.04	[0.21]	1403	6.98*	Sesquiterpene
Neryl acetate	17.92	1360	0.35	0.42	1657	16.18*	Monoterp. ester
β-Elemene	18.93	1376	0.05	[8.12]	1522	10.17†*	Sesquiterpene
Geranyl acetate	19.43	1383	0.63	0.73	1690	17.93	Monoterp. ester
β-Caryophyllene	20.68	1401	3.25	[8.12]	1522	10.17†*	Sesquiterpene
α-Santalene	21.01	1405	0.32	0.25	1514	9.87	Sesquiterpene
trans-α-Bergamotene	22.18	1419	0.09	[8.12]	1522	10.17†*	Sesquiterpene
α-Humulene	23.42	1434	0.09	0.09	1581	12.39	Sesquiterpene
allo-Aromadendrene	24.12*	1442	0.08	0.10	1559	11.57	Sesquiterpene
Coumarine	24.12*	1442	[0.08]				Coumarin
trans-β-Farnesene	24.60	1448	2.58	[3.49]	1615	13.94*	Sesquiterpene
Germacrene D	25.66	1461	0.40	[1.56]	1620	14.18*	Sesquiterpene
γ-Cadinene	28.72	1497	0.11	0.22	1667	16.73	Sesquiterpene
β-Bisabolene	28.88	1499	0.06	[0.42]	1657	16.18*	Sesquiterpene
Caryophyllene oxide	33.88	1569	0.21	0.20	1842	28.28	Sesquiterp. ether
τ-Cadinol	37.56	1638	0.06	0.07	2066	39.26	Sesquiterp. alcohol
<b>Total identified</b>			<b>98.93%</b>	<b>98.59%</b>			

\*: Two or more compounds are coeluting on this column

[xx]: Duplicate percentage due to coelutions, not taken account in the identified total

†: Peaks apexes were resolved, but peaks overlapped and were summed for analysis

Note: no correction factor was applied

#### OTHER DATA

**Physical aspect :** Clear liquid

**Refractive index :** 1.4598 ± 0.0003 (20 °C)

#### CONCLUSION

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

17107-PTH2-1-DM\_BP5



