



**PLANT THERAPY**  
100% PURE ESSENTIAL OILS

## GC/MS BATCH NUMBER: L40107

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**ESSENTIAL OIL:** LAVENDER  
**BOTANICAL NAME:** LAVANDULA ANGUSTIFOLIA  
**ORIGIN:** BULGARIAN

KEY CONSTITUENTS PRESENT IN THIS BATCH OF LAVENDER OIL	%
LINALYL ACETATE	32.62
LINALOOL	30.16
TERPINEN-4-ol	4.37
cis- $\beta$ -OCIMENE	4.17
$\beta$ -CARYOPHYLLENE	4.03
LAVANDULYL ACETATE	3.25
trans- $\beta$ -FARNESENE	3.24
trans- $\beta$ -OCIMENE	2.74
OCTAN-3-ONE	1.22

Comments from Robert Tisserand: Beautiful powdery, almost musky odor quality. All thirteen key ISO constituents are within range.

**Date :** August 22, 2017

*SAMPLE IDENTIFICATION*

**Internal code :** 17H18-PTH1-1-DM

**Customer identification :** Lavender - Bulgarian - L4010768R

**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 :** Sylvain Mercier, M. Sc., chimiste

**Analysis date :** 2017-08-22

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	0.55	658	0.01	0.02	771	0.67	Aliphatic aldehyde
2-Methylbutyral	0.67	674	0.01				Aliphatic aldehyde
Hexan-2-ol	1.86	816	0.02				Aliphatic alcohol
Methyl hexyl ether	1.93	822	0.12	0.12	848	0.83	Aliphatic ether
cis-Hex-3-en-1-ol	2.49	865	0.04	0.04	1325	5.67	Aliphatic alcohol
Hexanol	2.71	881	0.11	0.20	1301	5.27	Aliphatic alcohol
Tricyclene	3.23	915	0.02	0.01	919	1.11	Monoterpene
$\alpha$ -Thujene	3.32	920	0.10	0.13	957	1.27	Monoterpene
$\alpha$ -Pinene	3.42	927	0.20	0.16	945	1.22	Monoterpene
Camphene	3.71*	944	0.13	0.04	1004	1.61	Monoterpene
$\alpha$ -Fenchene	3.71*	944	[0.13]	0.11	994	1.53	Monoterpene
Sabinene	4.14	969	0.05	0.05	1060	2.08	Monoterpene
$\beta$ -Pinene	4.21	973	0.06	0.05	1041	1.90	Monoterpene
Myrcene	4.48	989	0.59	0.62	1115	2.68*	Monoterpene
Octan-3-one	4.53*	992	1.66	1.22	1202	3.79	Aliphatic ketone
Octen-3-ol	4.53*	992	[1.66]	0.33	1400	6.90	Aliphatic alcohol
Butyl butyrate	4.69	1001	0.12				Aliphatic ester
$\Delta$ 3-Carene	4.76*	1005	0.13	0.08	1093	2.40	Monoterpene
$\alpha$ -Phellandrene	4.76*	1005	[0.13]	0.02	1109	2.59	Monoterpene
Octan-3-ol	4.80	1007	0.30	0.37	1346	5.98	Aliphatic alcohol
$\alpha$ -Terpinene	4.95	1015	0.04	[0.62]	1115	2.68*	Monoterpene
Hexyl acetate	5.00	1018	0.54	0.61	1225	4.13*	Aliphatic ester
para-Cymene	5.14	1026	0.11	3.04	1207	3.86*	Monoterpene
Limonene	5.18	1028	0.39	1.25	1145	3.07*	Monoterpene
$\beta$ -Phellandrene	5.21	1029	0.25	[1.25]	1145	3.07*	Monoterpene
1,8-Cineole	5.24	1031	0.62	[1.25]	1145	3.07*	Monoterp. ether
cis- $\beta$ -Ocimene	5.37	1038	4.17	4.17	1193	3.64*	Monoterpene
trans- $\beta$ -Ocimene	5.55	1048	2.74	[3.04]	1207	3.86*	Monoterpene
$\gamma$ -Terpinene	5.73	1058	0.15	[4.17]	1193	3.64*	Monoterpene
cis-Linalool oxide (fur.)	6.01	1073	0.11	0.10	1379	6.51	Monoterp. alcohol
cis-Sabinene hydrate	6.07	1076	0.10	0.24	1405	7.02*	Monoterp. alcohol
Terpinolene	6.20	1084	0.08	[0.61]	1225	4.13*	Monoterpene
trans-Linalool oxide (fur.)	6.32	1090	0.10	[0.24]	1405	7.02*	Monoterp. alcohol
para-Cymenene	6.42	1095	0.02	0.39	1369	6.35*	Monoterpene
Linalool	6.83*	1111	31.07	29.98	1501	9.42*	Monoterp. alcohol
Octen-3-yl acetate	6.83*	1111	[31.07]	0.91	1333	5.77	Aliphatic ester
Octan-3-yl acetate	7.05	1119	0.14	0.16	1294	5.16	Aliphatic ester
cis-para-Menth-2-en-1-ol	7.23	1126	0.07	[29.98]	1501	9.42*	Monoterp. alcohol
Camphor	7.78	1146	0.29	0.22	1424	7.47	Monoterp. ketone
Lavandulol	8.38	1167	0.98	5.41	1617	14.06*	Monoterp. alcohol
Borneol	8.67	1178	0.82	1.21	1622	14.29*	Monoterp. alcohol

Terpinen-4-ol	8.86	1185	4.37	4.58	1529	10.45*	Monoterp. alcohol
Hexyl butyrate	9.19*	1197	0.61	[0.39]	1369	6.35*	Aliphatic ester
Cryptone	9.19*	1197	[0.61]	0.18	1563	11.71	Monoterp. ketone
$\alpha$ -Terpineol	9.49	1204	0.88	[1.21]	1622	14.29*	Monoterp. alcohol
Bornyl formate	10.37	1223	0.04	0.05	1455	8.22	Monoterp. ester
Nerol	10.66	1230	0.13	0.16	1729	20.40	Monoterp. alcohol
Neral	11.17	1241	0.07	0.12	1599	13.11	Monoterp. aldehyde
Linalyl acetate	11.63	1251	32.62	33.16	1510	9.72	Monoterp. ester
Geraniol	11.88	1256	0.32	0.35	1780	23.88	Monoterp. alcohol
iso-Isopulegyl acetate	12.94	1280	0.12	[4.58]	1529	10.45*	Monoterp. ester
Lavandulyl acetate	13.28	1287	3.25	3.31	1551	11.25	Monoterp. ester
$\alpha$ -Cubebene	16.01	1332	0.08	[0.24]	1405	7.02*	Sesquiterpene
$\alpha$ -Copaene	17.72	1357	0.02	0.03	1436	7.74	Sesquiterpene
Neryl acetate	17.88	1360	0.33	0.37	1660	16.31*	Monoterp. ester
$\beta$ -Elemene	18.93	1376	0.09	4.02	1524	10.26*	Sesquiterpene
Geranyl acetate	19.38	1382	0.55	0.63	1694	18.07*	Monoterp. ester
Hexyl hexanoate	19.86	1390	0.09	0.13	1584	12.50*	Aliphatic ester
$\beta$ -Caryophyllene	20.69	1401	4.03	[4.02]	1524	10.26*	Sesquiterpene
$\alpha$ -Santalene	21.01	1405	0.37	0.45	1516	9.95	Sesquiterpene
<i>trans</i> - $\alpha$ -Bergamotene	22.18	1419	0.12	[4.58]	1529	10.45*	Sesquiterpene
$\alpha$ -Humulene	23.42	1434	0.10	[0.13]	1584	12.50*	Sesquiterpene
allo-Aromadendrene	24.10	1442	0.12	0.16	1560	11.58	Sesquiterpene
<i>trans</i> - $\beta$ -Farnesene	24.62	1448	3.24	[5.41]	1617	14.06*	Sesquiterpene
Germacrene D	25.66	1461	0.53	[5.41]	1617	14.06*	Sesquiterpene
$\gamma$ -Cadinene	28.73	1497	0.11	0.20	1668	16.77	Sesquiterpene
$\beta$ -Bisabolene	28.87	1499	0.04	[0.37]	1660	16.31*	Sesquiterpene
( <i>E,E</i> )- $\alpha$ -Farnesene	29.18	1503	0.04	[0.63]	1694	18.07*	Sesquiterpene
Caryophyllene oxide	33.83	1569	0.30	0.24	1844	28.44	Sesquiterp. ether
$\tau$ -Cadinol	37.54	1638	0.06	0.05	2068	39.33	Sesquiterp. alcohol
<b>Total identified</b>			<b>99.09%</b>	<b>99.45%</b>			

\*: 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 :** 1.4600  $\pm$  0.0003 (20 °C)

#### CONCLUSION

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

17H18-PTH1-1-DM\_BP5



