

## GC-MS Profiling Analysis Prepared for Jade Bloom, Inc

**Date:** January 29, 2018  
**Sample:** Lavender Bulgaria  
**Type:** Essential Oil  
**Source:** Lavandula angustifolia  
**Batch:** #Lot 66677

### IDENTIFIED COMPOUNDS

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
2-Methyl-3-buten-2-ol	0.54	657	0.01				Aliphatic alcohol
Toluene	1.31	758	tr	0.09	954	1.04*	Simple phenolic
Hexan-2-ol	1.85	815	0.02				Aliphatic alcohol
Methyl hexyl ether	1.92	821	0.09	0.09	853	0.70	Aliphatic ether
cis-Hex-3-en-1-ol	2.49	864	0.04	0.04	1342	5.33	Aliphatic alcohol
Hexanol	2.71	880	0.09	0.08	1297	4.67	Aliphatic alcohol
Tricyclene	3.22	915	0.01	0.02	918	0.91	Monoterpene
$\alpha$ -Thujene	3.31	920	0.09	[0.09]	954	1.04*	Monoterpene
$\alpha$ -Pinene	3.41	926	0.21	0.21	942	1.00	Monoterpene
Camphene	3.70	943	0.13	0.13	996	1.25	Monoterpene
Sabinene	4.13	968	0.05	0.05	1061	1.72	Monoterpene
$\beta$ -Pinene	4.20	972	0.08	0.08	1040	1.56	Monoterpene
Myrcene	4.48	988	0.59	0.57	1116	2.25	Monoterpene
Octen-3-ol	4.52*	991	1.29	0.15	1401	6.20	Aliphatic alcohol
Octan-3-one	4.52*	991	[1.29]	4.26	1203	3.34*	Aliphatic ketone
Butyl butyrate	4.68	1000	0.12				Aliphatic ester
$\Delta^3$ -Carene	4.75*	1004	0.13	0.08	1094	1.99	Monoterpene
$\alpha$ -Phellandrene	4.75*	1004	[0.13]	0.03	1109	2.16	Monoterpene
Octan-3-ol	4.81	1007	0.21	0.21	1351	5.46	Aliphatic alcohol
$\alpha$ -Terpinene	4.94	1014	0.07	0.05	1122	2.32	Monoterpene
Hexyl acetate	4.99	1017	0.40	0.50	1222	3.61*	Aliphatic ester
para-Cymene	5.14	1025	0.10	0.13	1208	3.40	Monoterpene
Limonene	5.17	1027	0.48	0.47	1140	2.53	Monoterpene
$\beta$ -Phellandrene	5.21	1029	0.11	0.98	1147	2.62*	Monoterpene
1,8-Cineole	5.23	1030	0.87	[0.98]	1147	2.62*	Monoterp. ether
cis- $\beta$ -Ocimene	5.37	1038	4.03	4.17	1186	3.14*	Monoterpene
trans- $\beta$ -Ocimene	5.55	1047	3.22	[4.26]	1203	3.34*	Monoterpene
$\gamma$ -Terpinene	5.72	1057	0.15	[4.17]	1186	3.14*	Monoterpene
cis-Linalool oxide (fur.)	6.00	1072	0.13	0.18	1383	5.93	Monoterp. alcohol
cis-Sabinene hydrate	6.07	1076	0.08	0.22	1404	6.25*	Monoterp. alcohol
Terpinolene	6.20	1083	0.11	[0.50]	1222	3.61*	Monoterpene
trans-Linalool oxide (fur.)	6.32	1089	0.11	[0.22]	1404	6.25*	Monoterp. alcohol
para-Cymenene	6.42	1095	0.02	0.02	1365	5.67	Monoterpene
Linalool	6.85*	1111	30.98	31.30	1507	8.39*	Monoterp. alcohol
Octen-3-yl acetate	6.85*	1111	[30.98]	0.74	1332	5.18	Aliphatic ester
Octan-3-yl acetate	7.04	1118	0.09	0.11	1292	4.59	Aliphatic ester
cis-para-Menth-2-en-1-ol	7.23	1125	0.17	[31.30]	1507	8.39*	Monoterp. alcohol
trans-para-Menth-2-en-1-ol	7.75	1144	0.08	0.25	1559	10.01	Monoterp. alcohol
Camphor	7.79	1145	0.37	0.38	1424	6.66	Monoterp. ketone
Lavandulol	8.40	1167	0.63	0.97	1623	12.33*	Monoterp. alcohol
Borneol	8.71	1179	0.96	1.11	1618	12.12	Monoterp. alcohol

Compound	%	ISO 3515:2004 : <i>Lavandula angustifolia</i>				Complies?
		Clonal lavender, "other origins" (non- Bulgarian)		Clonal lavender, Bulgaria		
		% min	% max	% min	% max	
Octan-3-one	1.2		3	0.2	1.6	Yes
Limonene	0.5		1		0.6	Yes
$\beta$ -Phellandrene	0.1		1		0.6	Yes
1,8-Cineole	0.9		3		2	Yes
<i>cis</i> - $\beta$ -Ocimene	4.3	1	10	3	9	Yes
<i>trans</i> - $\beta$ -Ocimene	3.2	0.5	6	2	5	Yes
Linalool	30	20	43	22	34	Yes
Camphor	0.4		1.5		0.6	Yes
Lavandulol	0.6		3	0.3		Yes
Terpinen-4-ol	4.7		8	2	5	Yes
$\alpha$ -Terpineol	1.1		2	0.8	2	Yes
Linalyl acetate	33.3	25	47	30	42	Yes
Lavandulyl acetate	2.9		8	2	5	Yes
<b>Refractive index</b>	1.4608	1.460	1.464	1.459	1.463	Yes

#### CONCLUSION

No adulterant, contaminant or diluent were detected using this method. The oil complies with the ISO norm.

