

Analysis Clary Sage Essential Oil

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SAMPLE IDENTIFICATION

Internal code : 17E10-FSE3-1-DM

Customer identification : Clary Sage - Lot MP16K726

Type : Essential oil

Source : *Salvia sclarea*

Customer : Flowers Shining Everywhere Inc.



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 : 2017-05-18

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.	
<i>cis</i> -Hex-3-en-1-ol	2.48	865	0.03	0.01	1334	5.51	Aliphatic alcohol
<i>trans</i> -Hex-2-en-1-ol	2.63	877	0.05	0.04	1345	5.68	Aliphatic alcohol
Hexanol	2.69	882	0.03	0.03	1297	4.95	Aliphatic alcohol
α -Thujene	3.31	922	tr	0.01	952	1.14	Monoterpene
α -Pinene	3.41	928	0.11	0.10	942	1.09	Monoterpene
Camphene	3.70	946	0.03	0.03	999	1.37	Monoterpene
Sabinene	4.13	971	0.03	0.03	1052	1.87	Monoterpene
β -Pinene	4.19	975	0.14	0.12	1037	1.71	Monoterpene
Myrcene	4.46*	991	0.31	0.23	1114	2.42	Monoterpene
<i>trans</i> -Dehydroxylinalool oxide	4.46*	991	[0.31]	0.07	1151	2.91	Monoterp. ether
Octen-3-ol	4.46*	991	[0.31]	0.04	1407	6.65*	Aliphatic alcohol
<i>para</i> -Cymene	5.11	1027	0.02	0.02	1206	3.61	Monoterpene
Limone	5.15	1029	0.15	0.14	1138	2.74	Monoterpene
1,8-Cineole	5.22	1033	0.01	0.02	1143	2.80	Monoterp. ether
<i>cis</i> - β -Ocimene	5.33	1039	0.07	0.09	1183	3.32*	Monoterpene
<i>trans</i> - β -Ocimene	5.51	1049	0.07	0.06	1199	3.53	Monoterpene
γ -Terpinene	5.70	1059	tr	[0.09]	1183	3.32*	Monoterpene
<i>cis</i> -Linalool oxide (fur.)	5.98	1074	0.01	0.01	1373	6.12	Monoterp. alcohol
Terpinolene	6.17	1085	0.01	0.01	1221	3.82	Monoterpene
<i>trans</i> -Linalool oxide (fur.)	6.29	1092	0.01	[0.04]	1407	6.65*	Monoterp. alcohol
Linalool	6.70	1109	12.18	11.77	1492	8.62	Monoterp. alcohol
Borneol	8.51	1176	0.03	1.87	1620	12.97*	Monoterp. alcohol
α -Terpineol	9.36	1204	0.47	0.69	1623	13.11*	Monoterp. alcohol
γ -Terpineol	9.56	1209	0.05	0.04	1634	13.67	Monoterp. alcohol
Linalyl formate	9.77	1213	0.74				Monoterp. alcohol
Nerol	10.59	1231	0.09	0.11	1736	19.11	Monoterp. alcohol
Linalyl acetate	11.70	1256	75.92	77.45	1511	9.05	Monoterp. ester
Geraniol	11.77	1258	0.24	0.24	1778	21.93	Monoterp. alcohol
Geranyl formate	13.95	1304	0.05	[0.69]	1623	13.11*	Monoterp. ester
α -Cubebene	15.91	1334	0.03	0.03	1402	6.58	Sesquiterpene
α -Terpinyl acetate	16.33	1340	0.16	[0.69]	1623	13.11*	Monoterp. ester
Unknown (m/z = 43, 79 (46), 71 (35), 94 (26), 81 (23), 41 (23), 68 (23), 59 (20), 67 (20)...))	16.82	1348	0.13				Monoterp. alcohol?
Unknown (m/z = 43, 79 (49), 71 (35), 94 (29), 81 (27), 93 (24), 41 (24), 68 (23), 59 (22), 67 (22)...))	17.07	1351	0.16				Monoterp. alcohol?
α -Copaene	17.61	1360	0.63	0.63	1432	7.18	Sesquiterpene

Neryl acetate	17.75	1362	0.18	0.18	1657	14.84	Monoterp. ester
β-Bourbonene	18.02	1366	0.14	0.14	1451	7.63	Sesquiterpene
β-Cubebene	18.57	1374	0.18	0.18	1476	8.21	Sesquiterpene
β-Elemene	18.80	1378	0.04	0.05	1524	9.45	Sesquiterpene
Geranyl acetate	19.22	1384	0.34	0.36	1688	16.44	Monoterp. ester
β-Caryophyllene	20.47	1402	1.24	1.27	1523	9.40	Sesquiterpene
α-Humulene	23.20	1435	0.05	0.06	1577	11.38	Sesquiterpene
Germacrene D	25.44	1462	1.82	[1.87]	1620	12.97*	Sesquiterpene
β-Selinene	26.08	1470	0.21	[0.69]	1623	13.11*	Sesquiterpene
Bicyclogermacrene	26.65	1477	0.22	0.19	1639	13.91	Sesquiterpene
Valencene	27.55	1488	0.08	0.11	1660	15.00	Sesquiterpene
δ-Cadinene	29.10	1507	0.07	0.08	1669	15.50	Sesquiterpene
Caryophyllene oxide	33.62*	1570	0.50	0.23	1845	26.37	Sesquiterp. ether
Spathulenol	33.62*	1570	[0.50]	0.22	2018	36.49	Sesquiterp. alcohol
Humulene epoxide II	34.88	1588	0.11	0.15	1904	30.68	Sesquiterp. ether
β-Eudesmol	37.62	1645	0.05	0.04	2108	39.52	Sesquiterp. alcohol
Sclareoloxide	44.76	1863	0.06	0.07	2091	38.99	Diterp. ether
Sclareol	52.99	2211	0.34	0.36	2978	57.26	Diterp. alcohol
Total identified			97.3%	97.58%			

*: 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 : 1.4570 ± 0.0003 (20 °C)

CONCLUSION

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

