

GC/MS BATCH NUMBER: CF0102

ESSENTIAL OIL: CLARY SAGE
BOTANICAL NAME: SALVIA SCLAREA
ORIGIN: FRANCE

KEY CONSTITUENTS PRESENT IN THIS BATCH OF CLARY SAGE OIL	%
LINALYL ACETATE	58.4
LINALOOL	21.8
α -TERPINEOL	4.5
GERANYL ACETATE	2.6
GERANIOL	2.0
β -CARYOPHYLLENE	1.7
NERYL ACETATE	1.4
MYRCENE	1.0
NEROL	1.0
GERMACRENE D	0.9
SCLAREOL	0.7

Comments from Robert Tisserand: Organoleptically, an excellent Clary Sage oil. Compared with the ISO standard, this oil is slightly low in germacrene D, but I do not see this as a concern.

Date : March 30, 2016

SAMPLE IDENTIFICATION

Internal code : 16C22-PTH1-1-AS

Customer identification : Clary Sage - France - CF0102510

Type : Essential oil

Source : *Salvia sclarea*

Customer : Plant Therapy

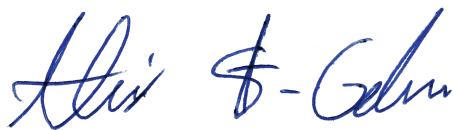
ANALYSIS

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 : 2016-03-28

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	2.31	863	0.04	0.02	1335	4.91	Aliphatic alcohol
α -Pinene	3.18	926	0.10	0.09	952	0.91	Monoterpene
Camphene	3.45	943	0.01	0.01	1006	1.15	Monoterpene
Sabinene	3.83	967	tr	0.01	1062	1.59	Monoterpene
β -Pinene	3.87	969	0.01	tr	1051	1.50	Monoterpene
Myrcene	4.21	990	1.04	0.97	1120	2.10	Monoterpene
α -Phellandrene	4.42	1003	0.05	0.04	1114	2.04	Monoterpene
Octan-3-ol	4.51	1008	0.01	0.01	1361	5.28	Aliphatic alcohol
para-Cymene	4.83	1026	0.01	0.01	1214	3.20	Monoterpene
Limonene	4.88	1028	0.28	0.26	1144	2.38	Monoterpene
<i>cis</i> - β -Ocimene	5.07	1039	0.41	0.39	1191	2.93	Monoterpene
<i>trans</i> - β -Ocimene	5.24	1049	0.56	0.52	1209	3.13	Monoterpene
<i>cis</i> -Linalool oxide (fur.)	5.72	1076	0.08	0.08	1390	5.69	Monoterp. alcohol
Terpinolene	5.89	1085	0.04	0.04	1228	3.41	Monoterpene
<i>trans</i> -Linalool oxide (fur.)	6.02	1092	0.10	0.10	1416	6.10	Monoterp. alcohol
Linalool	6.40	1110	21.83	80.94	1511	7.91†	Monoterp. alcohol
Borneol	8.04	1175	0.03	0.06	1630	11.66	Monoterp. alcohol
α -Terpineol	8.85	1205	4.54	4.54	1636	11.93	Monoterp. alcohol
γ -Terpineol	9.03	1209	0.03	0.03	1642	12.24	Monoterp. alcohol
Nerol	9.95	1231	0.97	0.97	1740	16.91	Monoterp. alcohol
Neral	10.51	1244	0.05	0.05	1611	10.89	Monoterp. aldehyde
Linalyl acetate	10.96	1255	58.43	[80.94]	1521	8.14†	Monoterp. ester
Geraniol	11.06	1257	2.03	1.93	1793	20.03	Monoterp. alcohol
Geranial	11.82	1275	0.06	0.05	1657	12.85	Monoterp. aldehyde
Neryl acetate	16.74	1363	1.35	1.31	1667	13.31	Monoterp. ester
β -Elemene	17.46	1375	0.05	1.79	1529	8.40*	Sesquiterpene
Geranyl acetate	18.18	1386	2.56	2.48	1700	14.78	Monoterp. ester
β -Caryophyllene	19.24	1403	1.73	[1.79]	1529	8.40*	Sesquiterpene
α -Humulene	21.84	1435	0.09	0.10	1588	10.21	Sesquiterpene
Germacrene D	23.98	1461	0.94	0.86	1628	11.58	Sesquiterpene
Bicyclgermacrene	25.17	1476	0.11	0.10	1646	12.41	Sesquiterpene
δ -Cadinene	27.58	1505	0.04	0.03	1669	13.40	Sesquiterpene
Caryophyllene oxide	32.36	1568	0.20	0.10	1852	23.89	Sesquiterp. ether
Sclareol	52.37	2206	0.65	0.65	3009	56.27	Diterp. alcohol
Total identified			98.43%	98.54%			

*: 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 : 1.4585 ± 0.0003 (20 °C)

CONCLUSION

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

