

Analysis Rosemary Essential Oil

Laboratoire
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Date : June 20, 2017

SAMPLE IDENTIFICATION

Internal code : 17F08-FSE26-1-DM

Customer identification : Rosemary - Lot #211XE9213315B

Type : Essential oil

Source : *Rosmarinus officinalis*

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 : 2017-06-20

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.	
cis-Hex-3-en-1-ol	2.49	866	0.01	0.01	1321	5.08	Aliphatic alcohol
Santene	2.60	874	0.02	0.01	897	0.83	Normonoterpene
Tricyclene	3.22	917	0.52	0.49	927	0.96	Monoterpene
α -Thujene	3.31	923	0.16	0.55	960	1.10	Monoterpene
α -Pinene	3.46	931	23.55	22.84	958	1.08	Monoterpene
Camphene	3.73	947	9.76	9.47	1014	1.33	Monoterpene
α -Fenchene	3.73	947	[9.76]	0.21	995	1.26	Monoterpene
Thuja-2,4(10)-diene	3.80	951	0.21	0.23	1061	1.77*	Monoterpene
Sabinene	4.13	971	0.04	[0.23]	1061	1.77*	Monoterpene
β -Pinene	4.20	975	3.07	2.97	1047	1.64	Monoterpene
Myrcene	4.48*	992	2.99	2.87	1120	2.34	Monoterpene
Octen-3-ol	4.48*	992	[2.99]	0.15	1399	6.27	Aliphatic alcohol
Octan-3-one	4.51	994	0.82	0.67	1201	3.37*	Aliphatic ketone
α -Phellandrene	4.75*	1007	0.58	0.26	1111	2.25	Monoterpene
Δ^3 -Carene	4.75*	1007	[0.58]	0.29	1092	2.07	Monoterpene
α -Terpinene	4.94	1018	0.34	0.38	1126	2.41	Monoterpene
para-Cymene	5.16	1030	2.52	1.56	1210	3.49	Monoterpene
Limonene	5.20	1032	2.01	23.98	1153	2.77*	Monoterpene
1,8-Cineole	5.27	1036	20.60	[23.98]	1153	2.77*	Monoterp. ether
cis- β -Ocimene	5.34	1040	0.08	0.54	1190	3.23*	Monoterpene
trans- β -Ocimene	5.52	1050	0.03	[0.54]	1190	3.23*	Monoterpene
γ -Terpinene	5.71	1060	0.49	[0.67]	1201	3.37*	Monoterpene
cis-Sabinene hydrate	6.03	1077	0.02	0.01	1409	6.44	Monoterp. alcohol
Terpinolene	6.18	1086	0.35	0.33	1226	3.70	Monoterpene
Fenchone	6.33	1094	0.02	0.01	1325	5.13	Monoterp. ketone
para-Cymenene	6.38	1097	0.08	0.07	1371	5.83	Monoterpene
Linalool	6.68	1109	0.72	0.77	1494	8.24*	Monoterp. alcohol
endo-Fenchol	7.09	1124	0.05	0.06	1516	8.75	Monoterp. alcohol
cis-para-Menth-2-en-1-ol	7.15	1126	0.07	[0.77]	1494	8.24*	Monoterp. alcohol
α -Campholenal	7.23	1129	0.06				Monoterp. aldehyde
trans-Pinocarveol	7.64	1144	0.07	0.07	1570	10.44	Monoterp. alcohol
Camphor	7.82	1150	18.94	19.53	1434	6.82*	Monoterp. ketone
Camphene hydrate	7.97	1156	0.08	2.33	1526	8.99*	Monoterp. alcohol
Pinocaryone	8.11	1161	0.06	0.05	1474	7.77	Monoterp. ketone
Borneol	8.58*	1178	2.97	2.66	1621	12.31	Monoterp. alcohol
δ -Terpineol	8.58*	1178	[2.97]	0.12	1614	12.03	Monoterp. alcohol
Terpinen-4-ol	8.74	1184	0.70	0.69	1535	9.19	Monoterp. alcohol
para-Cymen-8-ol	9.26	1202	0.06	0.05	1773	20.04	Monoterp. alcohol
α -Terpineol	9.40	1205	1.30	1.23	1630	12.59	Monoterp. alcohol
Verbenone	9.77	1213	1.26	1.44	1599	11.51*	Monoterp. ketone
Bornyl acetate	12.87	1282	1.03	1.11	1505	8.49	Monoterp. ester

Essential oil, *Rosmarinus officinalis*
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Report prepared for
Flowers Shining Everywhere Inc.

α -Ylangene	17.15	1353	0.08	[19.53]	1434	6.82*	Sesquiterpene
α -Copaene	17.61	1360	0.08	0.13	1439	6.93	Sesquiterpene
β -Caryophyllene	20.53	1403	2.25	[2.33]	1526	8.99*	Sesquiterpene
α -Humulene	23.26	1436	0.59	0.63	1586	11.00	Sesquiterpene
γ -Muurokene	25.31	1461	0.06	[1.44]	1599	11.51*	Sesquiterpene
α -Selinene	26.70	1477	0.03	0.04	1640	13.00	Sesquiterpene
α -Muurokene	27.62	1488	0.02	0.02	1653	13.62	Sesquiterpene
γ -Cadinene	28.49	1499	0.04	0.05	1674	14.67	Sesquiterpene
β -Bisabolene	28.70	1502	0.07	0.06	1664	14.20	Sesquiterpene
δ -Cadinene	29.16	1508	0.10	0.09	1679	14.93	Sesquiterpene
Caryophyllene oxide	33.65	1570	0.13	0.12	1857	25.50	Sesquiterp. ether
Caryophylla-4(12),8(13)-dien-5 α -ol	36.93	1629	0.01	0.02	2185	40.92	Sesquiterp. alcohol
Total Identified			99.10%			99.17%	

*: 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 : 1.4680 \pm 0.0003 (20 °C)

CONCLUSION

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



