

Rosemary Verbenone Essential Oil

# ESSENTIAL OIL ANALYSIS

Laboratoire  
**Phyto**Chemia





Date : May 31, 2017

#### SAMPLE IDENTIFICATION

**Internal code :** 17E19-FSE17-1-DM

**Customer identification :** Rosemary - Lot #HER011405

**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).

+ **Identifications** double-checked by GC-MS

**Analyst :** Benoit Roger, Ph. D.

**Analysis date :** 2017-05-24



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.	
Tricyclene	3.22	917	0.33	0.31	914	0.98	Monoterpene
α-Thujene	3.31	923	0.18	35.85	949	1.13*	Monoterpene
α-Pinene	3.47	932	35.73	[35.85]	949	1.13*	Monoterpene
Camphene	3.72*	947	7.01	6.93	999	1.36	Monoterpene
α-Fenchene	3.72*	947	[7.01]	0.05	988	1.29	Monoterpene
Thuja-2,4(10)-diene	3.79	951	1.06	1.08	1050	1.83*	Monoterpene
Sabinene	4.13	971	0.08	[1.08]	1050	1.83*	Monoterpene
β-Pinene	4.19	975	2.53	2.46	1035	1.69	Monoterpene
Myrcene	4.47*	991	1.69	1.41	1112	2.39	Monoterpene
Octen-3-ol	4.47*	991	[1.69]	0.19	1390	6.38	Aliphatic alcohol
Octan-3-one	4.50	994	0.13	0.12	1193	3.44	Aliphatic ketone
α-Phellandrene	4.74*	1007	0.89	0.66	1090	2.30	Monoterpene
Δ <sup>3</sup> -Carene	4.74*	1007	[0.89]	0.16	1076	2.12	Monoterpene
α-Terpinene	4.93	1017	0.44	0.40	1118	2.47	Monoterpene
para-Cymene	5.12	1028	1.50	1.56	1202	3.57	Monoterpene
Limonene	5.17*	1031	4.07	3.65	1137	2.72	Monoterpene
β-Phellandrene	5.17*	1031	[4.07]	7.19	1143	2.79*	Monoterpene
1,8-Cineole	5.23	1034	6.67	[7.19]	1143	2.79*	Monoterp. ether
cis-β-Ocimene	5.33	1039	0.12	1.09	1182	3.30*	Monoterpene
trans-β-Ocimene	5.51	1049	0.02	0.02	1195	3.47	Monoterpene
γ-Terpinene	5.70	1059	0.97	[1.09]	1182	3.30*	Monoterpene
cis-Sabinene hydrate	6.00	1076	0.19	0.22	1398	6.52	Monoterp. alcohol
Terpinolene	6.17	1085	0.76	0.74	1218	3.78	Monoterpene
para-Cymenene	6.37	1096	0.08	0.06	1356	5.84	Monoterpene
Linalool	6.64	1107	2.21	2.18	1487	8.48*	Monoterp. alcohol
endo-Fenchol	7.07*	1123	0.75	11.24	1500	8.79*	Monoterp. alcohol
Chrysanthemone	7.07*	1123	[0.75]	0.24	1432	7.18	Monoterp. ketone
α-Campholenal	7.21	1128	0.12	0.10	1410	6.69	Monoterp. aldehyde
trans-Pinocarveol	7.53	1140	0.19	0.17	1569	11.09	Monoterp. alcohol
trans-para-Menth-2-en-1-ol	7.61	1143	0.19	0.30	1558	10.72	Monoterp. alcohol
Camphor	7.72	1147	4.27	4.66	1420	6.89	Monoterp. ketone
Pinocarpone	8.07	1160	0.10	0.07	1463	7.93	Monoterp. ketone
Isopinocampone	8.41	1172	0.21	[2.18]	1487	8.48*	Monoterp. alcohol
Borneol	8.55*	1177	4.87	4.41	1612	12.67	Monoterp. alcohol
δ-Terpineol	8.55*	1177	[4.87]	5.64	1589	11.85*	Monoterp. alcohol
Terpinen-4-ol	8.71	1183	0.77	0.70	1523	9.41	Monoterp. alcohol
para-Cymen-8-ol	9.24	1201	0.07	1.37	1774	21.62*	Monoterp. alcohol
Myrtenol	9.38*	1204	1.15	0.43	1707	17.46	Monoterp. alcohol
α-Terpineol	9.38*	1204	[1.15]	0.83	1618	12.91	Monoterp. alcohol
Verbenone	9.78	1213	5.67	[5.64]	1589	11.85*	Monoterp. ketone
Bornyl formate	10.28	1225	0.09	0.50	1444	7.46	Monoterp. ester

Carvacrol methyl ether	11.07*	1242	0.15	0.20	1532	9.71	Monoterp. ether
cis-Shisool?	11.07*	1242	[0.15]	0.12	1733	18.93	Monoterp. alcohol
Carvone	11.35*	1248	0.20	0.13	1631	13.48	Monoterp. ketone
trans-Shisool?	11.35*	1248	[0.20]	0.20	1735	19.07	Monoterp. alcohol
Geraniol	11.76	1257	1.37	[1.37]	1774	21.62*	Monoterp. alcohol
trans-Myrtanol	12.51	1274	0.04	[1.37]	1774	21.62*	Monoterp. alcohol
Bornyl acetate	12.95	1284	10.76	[11.24]	1500	8.79*	Monoterp. ester
α-Copaene	17.90	1364	0.13	0.14	1422	6.94	Sesquiterpene
Geranyl acetate	19.19	1384	0.12	0.09	1682	16.17	Monoterp. ester
β-Caryophyllene	20.43	1402	0.41	0.48	1514	9.12	Sesquiterpene
Methyleugenol	21.29	1412	0.07	0.07	1923	32.05	Phenylpropanoid
α-Humulene	23.19	1435	0.09	0.09	1573	11.23	Sesquiterpene
β-Bisabolene	28.63	1501	0.05	0.07	1651	14.59	Sesquiterpene
<b>Total Identified</b>			<b>98.50%</b>	<b>98.58%</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** : Faintly yellow liquid

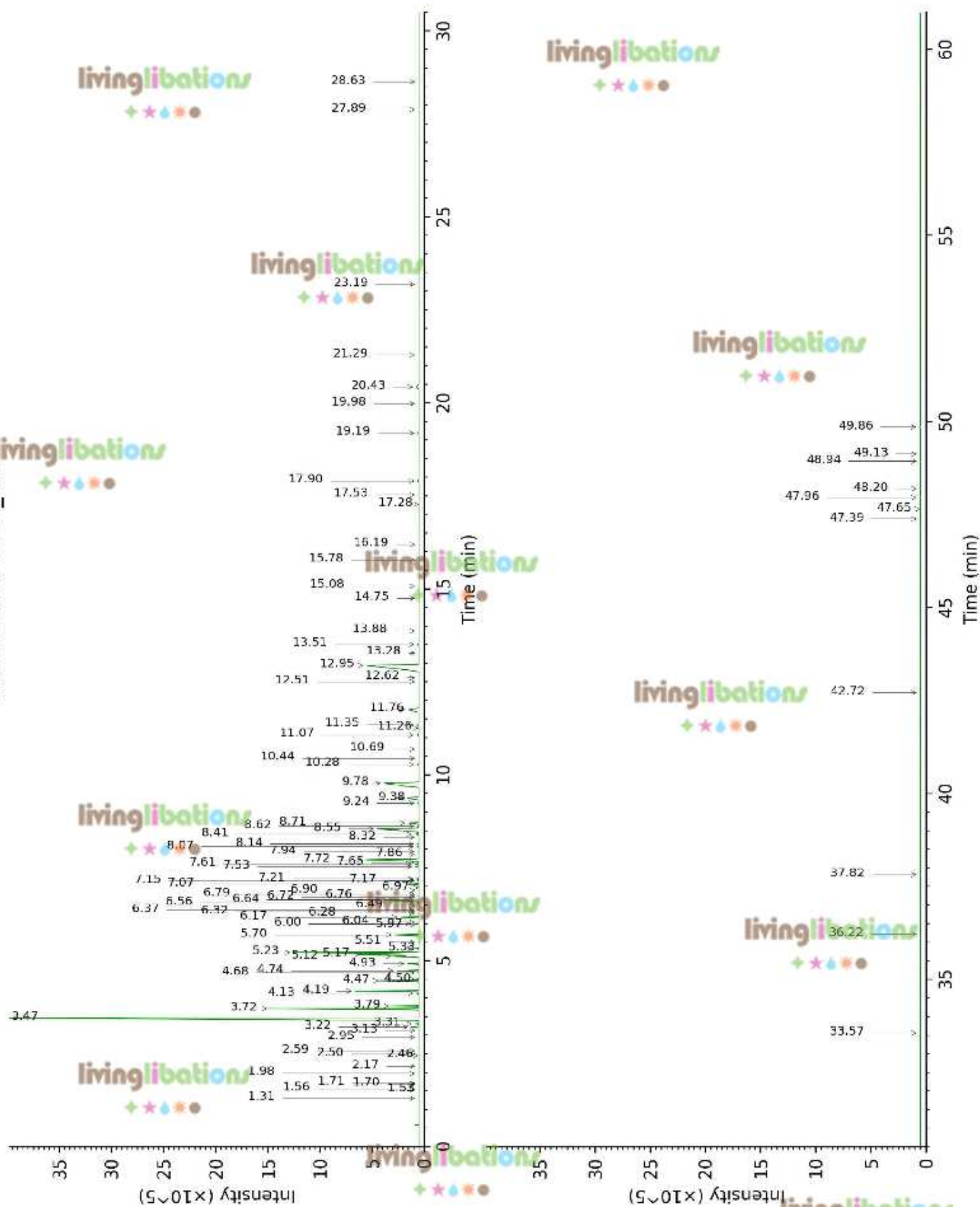
**Refractive Index** : 1.4703 ± 0.0003 (20 °C)

#### CONCLUSION

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



17E19-FSE17-1-DM\_BP5



17E19-FSE17-1-DM\_WAX

