

# ANALYSIS Rose otto Esssential Oil

Laboratoire  
**Phyto**Chemia



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Date : December 14, 2016

SAMPLE IDENTIFICATION

**Internal code :** 16L05-FSE15-T-DM  
**Customer identification :** Rose, Otto - Lot#001542  
**Type :** Essential oil  
**Source :** *Rosa x damascena*  
**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 :** 2016-12-13

Checked and approved by :

*Alexis St-Gelais*

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.	
Ethanol	0.33	496	0.74	0.73	786	0.50	Aliphatic alcohol
Isoamyl alcohol	1.15	729	0.01	0.03	1138	2.25*	Aliphatic alcohol
2-Methylbutyl alcohol	1.18	732	0.01	[0.03]	1138	2.25*	Aliphatic alcohol
cis-Hex-3-en-1-ol	2.51	866	0.02	0.01	1311	4.48	Aliphatic alcohol
Hexanol	2.73	881	0.05	0.05	1290	4.18	Aliphatic alcohol
Heptanal	3.08	908	0.04	0.05	1120	2.04	Aliphatic aldehyde
$\alpha$ -Pinene	3.36	925	0.18	0.17	947	0.87	Monoterpene
Sabinene	4.08	968	0.01	0.01	1057	1.51	Monoterpene
$\beta$ -Pinene	4.14	972	0.04	0.03	1039	1.36	Monoterpene
Benzaldehyde	4.20	975	0.02	0.01	1425	6.13	Simple phenolic
Myrcene	4.43	989	0.10	0.09	1115	1.97	Monoterpene
6-Methyl-5-hepten-2-one	4.51	994	0.02	0.01	1268	3.89	Aliphatic ketone
Limonene	5.11	1028	0.02	[0.03]	1138	2.25*	Monoterpene
cis- $\beta$ -Ocimene	5.30	1038	0.01	0.01	1187	2.82*	Monoterpene
trans- $\beta$ -Ocimene	5.48	1048	0.01	tr	1200	2.98	Monoterpene
$\gamma$ -Terpinene	5.66	1058	0.02	[0.01]	1187	2.82*	Monoterpene
Linalool	6.68	1125	0.12	0.12	1483	7.24	Monoterp. alcohol
cis-Rose oxide	6.72	1110	0.12	0.10	1293	4.23	Monoterp. ether
trans-Rose oxide	7.07	1123	0.04	0.04	1304	4.38	Monoterp. ether
Phenylethyl alcohol	7.26	1130	1.53	1.51	1793	19.27	Monoterp. alcohol
Terpinen-4-ol	8.73	1185	0.09	0.08	1525	8.05	Monoterp. alcohol
$\alpha$ -Terpineol	9.42	1205	0.13	0.14	1618	17.00	Monoterp. alcohol
Nerol	10.76	1235	11.00	11.22	1726	15.48	Monoterp. alcohol
Citronellol	11.21*	1245	31.62	31.92	1708	14.67	Monoterp. alcohol
Neral	11.21*	1245	[31.62]	0.27	1592	10.06*	Monoterp. aldehyde
cis-Isogeraniol	11.93	1261	0.05	0.10	1737	16.01	Monoterp. alcohol
Geraniol	12.30	1269	22.02	22.25	1779	18.45	Monoterp. alcohol
Geranial	12.66	1277	0.33	0.40	1645	11.90*	Monoterp. aldehyde
Citronellyl acetate	17.11	1351	0.11	0.13	1602	10.36	Monoterp. ester
Eugenol	17.77	1367	0.67	0.67	2044	34.97	Phenylpropanoid
Geranyl acetate	19.23	1384	0.24	0.40	1689	13.84	Monoterp. ester
$\beta$ -Caryophyllene	20.34	1399	0.16	0.30	1534	8.30*	Sesquiterpene
Methyleugenol	21.57	1414	0.97	0.96	1922	27.73	Phenylpropanoid
$\alpha$ -Gualene	21.84	1418	0.08	[0.30]	1534	8.30*	Sesquiterpene
$\alpha$ -Humulene	23.13	1433	0.08	[0.27]	1592	10.06*	Sesquiterpene
Germacrene D	25.33	1460	0.21	0.25	1635	11.42	Sesquiterpene
$\delta$ -Gualene	27.24	1482	0.07	[0.40]	1645	11.90*	Sesquiterpene
Heptadecane	39.83	1697	2.45	2.41	1744	16.48	Alkane
(2E,6E)-Farnesol	40.68	1724	0.56	0.62	2288	42.08	Sesquiterp. alcohol
trans-9-Nonadecene	44.96	1839	0.55	0.55	1949	29.38	Alkene
Nonadecane	45.88	1902	15.80	16.27	1983	31.36	Alkane

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Eicosane	48.26	1998	1.98	1.97	1998	1.98	Alkene
Tricosane	49.86	2067	0.05	0.05	2112	37.31	Alkene
Heneicosane	50.62	2100	4.41	4.40	2186	39.53	Alkene
Tricosane	54.86	2298	0.32	0.36	2399	44.49	Alkene
Pentacosane	58.80	2499	0.11	0.09	2571	47.84	Alkene
<b>Total Identified</b>			<b>98.44%</b>	<b>99.44%</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** : Light yellow liquid

**Refractive Index** : 1.4630 ± 0.0003 (20 °C)

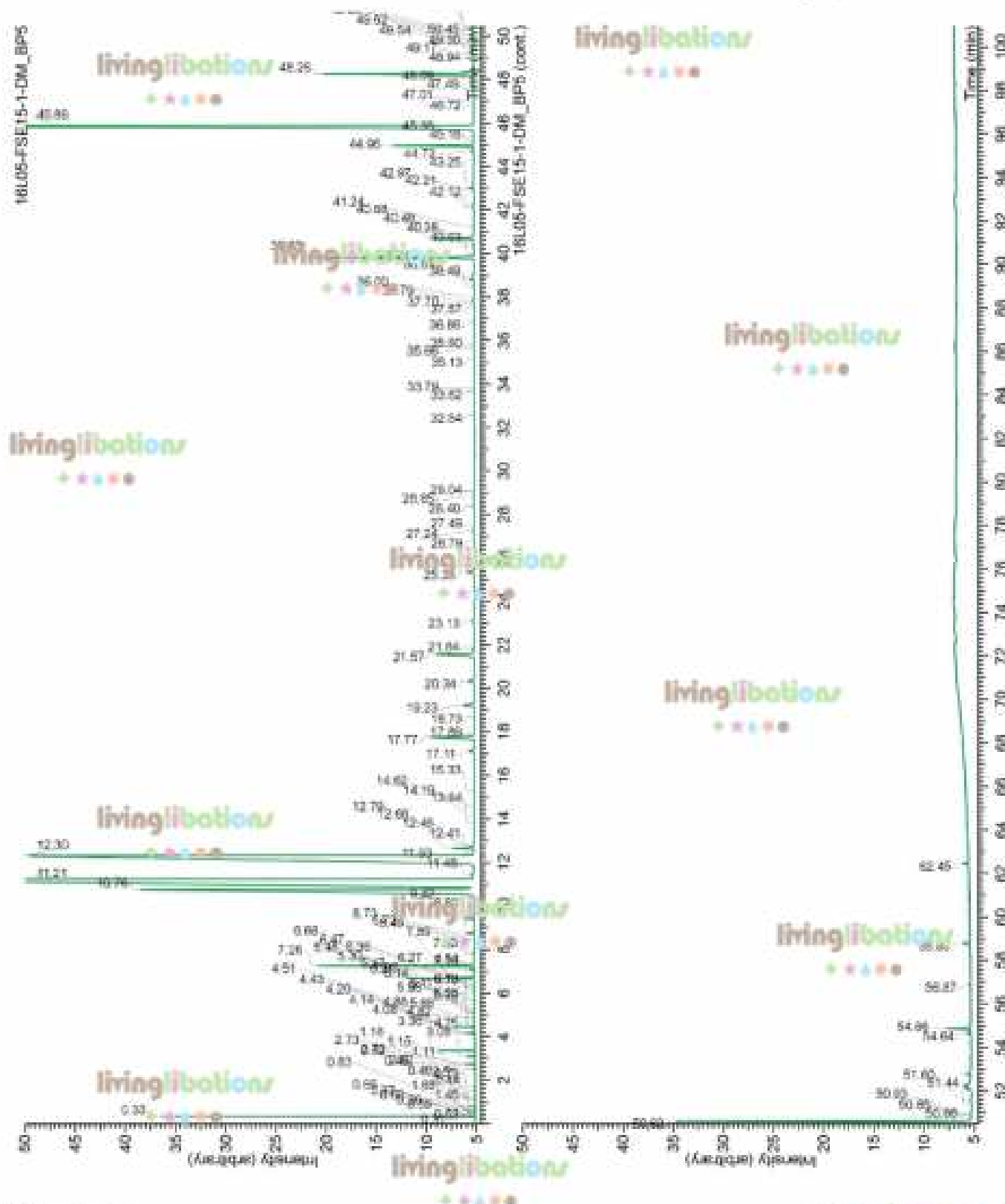
#### CONCLUSION

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

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