



GC/MS BATCH NUMBER: R30102

ESSENTIAL OIL: ROSE ABSOLUTE
BOTANICAL NAME: ROSA X DAMASCENA
ORIGIN: MOROCCO

KEY CONSTITUENTS PRESENT IN THIS BATCH OF ROSE ABSOLUTE OIL	%
PHENYLETHYL ALCOHOL	24.6
CITRONELLOL	6.4
GERANIOL	3.8
OLEIC ACID	1.2

Comments from Robert Tisserand: A very pleasant rich, buttery, "yellow" rose fragrance. The composition of the volatile compounds looks normal for Moroccan rose absolute.

Date : June 7, 2016

SAMPLE IDENTIFICATION

Internal code : 16E26-PTH3-1-SM

Customer identification : Rose Absolute - Morocco - R30102512

Type : Essential oil

Source : *Rosa x damascena*

Customer : Plant Therapy

ANALYSIS

Method : PC-PA-001-15E06, "Analysis of the composition of a liquid essential oil by GC-FID" (in French).

Analyst : Alexis St-Gelais, M. Sc., chimiste

Analysis date : 2016-05-30

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.	
Ethanol	0.34	500	0.01	0.01	812	0.55	Aliphatic alcohol
α -Pinene	3.34	929	0.01	0.01	951	0.91	Monoterpene
β -Pinene	4.11	975	0.01				Monoterpene
Myrcene	4.39	992	0.01	0.01	1118	2.08	Monoterpene
Limonene	5.06	1030	tr				Monoterpene
Benzyl alcohol	5.47	1053	0.14	0.12	1778	19.18	Simple phenolic
Linalool	6.67*	1114	0.02	0.01	1498	7.66	Monoterp. alcohol
<i>cis</i> -Rose oxide	6.67*	1114	[0.02]				Monoterp. ether
Phenylethyl alcohol	7.17*	1132	25.40	24.63	1815	21.36	Simple phenolic
<i>trans</i> -Rose oxide	7.17*	1132	[25.40]				Monoterp. ether
Phenylethyl formate	8.57	1185	0.01				Phenolic ester
Nerol	10.25	1229	0.20	0.18	1733	16.53	Monoterp. alcohol
Citronellol	10.63	1238	6.40	6.26	1717	15.58	Monoterp. alcohol
Geraniol	11.63	1260	3.80	3.54	1789	19.77	Monoterp. alcohol
Geranial	12.36	1277	0.02	0.02	1651	12.64	Monoterp. aldehyde
Eugenol	16.96	1357	0.40	0.36	2059	36.23	Phenylpropanoid
Geranic acid	18.42	1379	0.08	0.09	2255	41.97	Monoterp. acid
Geranyl acetate	18.90	1386	0.04	0.03	1694	14.57	Monoterp. ester
β -Caryophyllene	20.08	1404	0.06	0.05	1528	8.37	Sesquiterpene
Methyleugenol	20.93	1415	0.08	0.11	1933	29.47	Phenylpropanoid
α -Guaiene	21.58	1422	0.02	0.03	1532	8.50	Sesquiterpene
α -Humulene	22.50	1433	0.02	0.02	1595	10.43	Sesquiterpene
Germacrene D	24.99	1464	0.02	0.02	1628	11.60	Sesquiterpene
δ -Guaiene	26.90	1487	0.01	0.01	1639	12.09	Sesquiterpene
Heptadecane	39.69	1703	0.07	0.06	1723	15.88	Alkane
(2 <i>E</i> ,6 <i>E</i>)-Farnesol	40.31	1723	0.05	0.06	2289	42.76	Sesquiterp. alcohol
<i>trans</i> -9-Nonadecene	44.84	1876	0.20	0.16	1916	28.39	Alkene
Nonadecane	45.64	1905	0.23	0.16	1928	29.16	Alkane
Palmitic acid	47.78	1991	0.37	0.48	2852	53.67	Fatty acid
Oleic acid	51.68	2161	1.21	1.46	3135	58.28	Fatty acid
Linoleic acid	51.80	2167	0.91	0.57	3087	57.53	Fatty acid
Stearic acid	52.31	2190	0.18	0.19	3079	57.41	Fatty acid
Unknown phenylethyl ester I	61.97	2690	0.45				Phenolic ester
Unknown (m/z = 69, 123 (86), 138 (82), 81 (69), 95 (67), 41 (59), 55 (53)...)	62.52	2722	0.25				Monoterp. ester
Unknown geranyl ester I	63.15	2758	0.20				Monoterp. ester
Unknown (m/z = 105, 104 (37), 67 (20), 79 (17), 91 (14)...)	64.98	2867	0.48				

Unknown (m/z = 105, 104 (37), 79 (35), 91 (26), 67 (20)...)	65.14	2877	0.61		
Unknown (m/z = 69, 81 (75), 95 (66), 41 (55), 67 (48), 123 (44), 55 (41)...)	65.40	2892	0.47		
Unknown phenylethyl ester II	65.56	2902	0.68		Phenolic ester
Unknown geranyl ester II	66.01*	2929	0.85		Monoterp. ester
Unknown (m/z = 69, 81 (82), 138 (80), 95 (79), 41 (68), 123 (66), 43 (56)...)	66.01*	2929	[0.85]		Monoterp. ester
Unknown geranyl ester III	66.15	2938	0.43		Monoterp. ester
Unknown geranyl ester IV	66.54	2963	0.65		Monoterp. ester
α -Tocopherol	69.13	3128	0.53		Tocopherol
Unknown (m/z = 69, 41 (65), 109 (63), 93 (55), 95 (43), 55 (40), 107 (38), 205 (38)... 242 (25))	71.01	3253	0.33		Oxygenated triterp.
Unknown (m/z = 409, 69 (98), 55 (67), 41 (65), 95 (54)... 242? (13))	71.37	3277	3.12		Oxygenated triterp.
Unknown (m/z = 93, 109 (68), 69 (66), 95 (60), 121 (55), 41 (53), 107 (53)... 355 (16), 424 (23))	71.91	3312	2.24		Oxygenated triterp.
Unknown (m/z = 69, 163 (74), 411 (66), 41 (62), 55 (58), 105 (51), 95 (48), 191 (44)... 426? (15))	72.04	3319	2.97		Oxygenated triterp.
Unknown (m/z = 205, 68 (78), 218 (77), 107 (76), 81 (75)... 424 (42), 488 (8))	72.37	3336	5.79		Oxygenated triterp.
Unknown (m/z = 137, 324 (50), 312 (23), 91 (19), 325 (16), 488 (15))	72.44	3340	1.70		Oxygenated triterp.
Unknown (m/z = 69, 41 (62), 411 (61), 55 (49), 81 (49)... 393 (25), 426 (15))	72.77	3358	1.89		Oxygenated triterp.
Unknown (m/z = 218, 189 (61), 93 (59), 107 (57), 81 (56), 95 (55), 121 (51), 135 (51), 69 (50), 207 (50)... 426 (24))	72.91	3366	3.52		Oxygenated triterp.

Unknown (m/z = 121, 107 (89), 95 (86), 55 (83), 81 (79), 67 (79), 205 (78)... 424 (53))	73.82	3413	1.05				Oxygenated triterp.
Unknown (m/z = 55, 81 (94), 69 (89), 107 (89), 121 (87), 109 (87), 205 (85), 95 (83)... 424 (47))	74.04	3423	0.52				Oxygenated triterp.
Unknown (m/z = 121, 123 (84), 177 (76), 107 (56), 122 (55), 109 (49)... 205 (35), 424 (34))	74.28	3433	1.80				Oxygenated triterp.
Unknown (m/z = 119, 121 (100), 55 (93), 93 (85), 81 (85), 67 (82), 105 (80)... 207 (61), 422 (61))	74.45	3441	0.52				Oxygenated triterp.
Unknown (m/z = 121, 123 (68), 107 (60), 189 (58), 95 (55), 109 (52), 177 (51)... 207 (45), 426 (19))	74.94	3462	1.23				Oxygenated triterp.
Unknown (m/z = 109, 69 (60), 95 (41), 43 (33), 205 (32)... 424 (24))	76.27	3517	3.95	3.15	4131	80.50	Oxygenated triterp.
Unknown (m/z = 109, 69 (79), 95 (44), 43 (41), 93 (35)... 207 (30), 426 (15))	76.98	3541	0.84	0.79	4156	84.42	Oxygenated triterp.
Total identified			40.96%	42.59%			

*: 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 : Bright orange liquid

Refractive index : 1.4920 ± 0.0003 (20 °C)

CONCLUSION

No adulterant, contaminant or diluent were detected using this method. The numerous unknowns are mostly terpenic heavy constituents extracted along with the scented molecules during the absolute production. Please note that the reported concentrations are only representative of the volatile molecules, and not necessarily of their concentration in the absolute itself. Indeed, the absolute may contain an undetermined non-volatile fraction.



