

Date : September 19, 2017

SAMPLE IDENTIFICATION

Internal code : 17112-NGA6-1-DM

Customer identification : Rose Otto Bulgarian - Batch# BU-58616

Type : Essential oil

Source : *Rosa x damascena*

Customer : Nature's Gift Aromatherapy

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

Analysis date : 2017-09-15

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.	
Acetaldehyde	0.32	628	0.07				Aliphatic aldehyde
Ethanol	0.34	631	1.19	1.12	791	0.70	Aliphatic alcohol
Pentanal	0.85	698	0.06				Aliphatic aldehyde
Isoamyl alcohol	1.15	736	0.03	0.08	1146	3.07*	Aliphatic alcohol
2-Methylbutyl alcohol	1.17	740	0.03	0.04	1138	2.96	Aliphatic alcohol
Pentanol	1.44	775	0.03				Aliphatic alcohol
Hexanal	1.71	805	0.02	0.02	1005	1.62*	Aliphatic aldehyde
<i>cis</i> -Hex-3-en-1-ol	2.48	864	0.05	0.06	1334	5.79*	Aliphatic alcohol
<i>trans</i> -Hex-2-en-1-ol	2.67	878	0.01	0.01	1358	6.17	Aliphatic alcohol
Hexanol	2.69	880	0.18	0.17	1293	5.14	Aliphatic alcohol
Heptanal	3.11	908	0.13	0.15	1122	2.76*	Aliphatic aldehyde
α -Pinene	3.41	926	0.52	0.46	938	1.19	Monoterpene
Camphene	3.70	943	tr	[0.02]	1005	1.62*	Monoterpene
Sabinene	4.13	969	0.06	0.05	1056	2.03	Monoterpene
β -Pinene	4.19	972	0.13	0.11	1035	1.86	Monoterpene
Benzaldehyde	4.22	974	0.04	0.05	1430	7.60	Simple phenolic
Heptanol	4.39	984	0.02				Aliphatic alcohol
Myrcene	4.47	989	0.33	0.29	1111	2.62	Monoterpene
Benzyl methyl ether	4.51	991	tr				Simple phenolic
6-Methyl-5-hepten-2-one	4.55	993	0.05	0.04	1275	4.88	Aliphatic ketone
6-Methyl-5-hepten-2-ol	4.75	1004	0.02	0.02	1412	7.19*	Aliphatic alcohol
α -Terpinene	4.94	1015	0.02	[0.15]	1122	2.76*	Monoterpene
<i>para</i> -Cymene	5.13	1025	0.01	0.03	1202	3.78	Monoterpene
Limonene	5.16	1027	0.04	[0.08]	1146	3.07*	Monoterpene
β -Phellandrene	5.19	1029	0.01	[0.08]	1146	3.07*	Monoterpene
1,8-Cineole	5.23	1030	0.01	[0.08]	1146	3.07*	Monoterp. ether
<i>cis</i> - β -Ocimene	5.34	1037	0.01	0.05	1183	3.59	Monoterpene
<i>trans</i> - β -Ocimene	5.53	1047	0.03	0.04	1194	3.66*	Monoterpene
Benzyl alcohol	5.68	1055	0.02	23.94	1780	23.87*	Simple phenolic
γ -Terpinene	5.71*	1057	0.09	[0.04]	1194	3.66*	Monoterpene
Benzeneacetaldehyde	5.71*	1057	[0.09]				Simple phenolic
<i>cis</i> -Linalool oxide (fur.)	6.00	1072	0.01	0.01	1374	6.43	Monoterp. alcohol
Terpinolene	6.19	1083	0.03	0.02	1223	4.10	Monoterpene
<i>trans</i> -Linalool oxide (fur.)	6.32	1090	0.01	[0.02]	1412	7.19*	Monoterp. alcohol
Rose furan	6.41	1095	0.04	0.04	1344	5.95	Monoterp. ether
Linalool	6.69	1106	1.12	1.31	1493	9.13*	Monoterp. alcohol
<i>cis</i> -Rose oxide	6.79*	1110	0.35	0.25	1296	5.20	Monoterp. ether
Nonanal	6.79*	1110	[0.35]	[0.06]	1334	5.79*	Aliphatic aldehyde
Phenylethyl alcohol	7.18*	1124	1.15	1.11	1803	25.36*	Simple phenolic
<i>trans</i> -Rose oxide	7.18*	1124	[1.15]	0.12	1304	5.32	Monoterp. ether
<i>trans</i> -Verbenol	7.82	1147	0.03	0.02	1605	13.39	Monoterp. alcohol

Nerol oxide	7.88	1149	0.05				Monoterp. ether
Citronellal	7.97	1152	0.03	[0.02]	1412	7.19*	Monoterp. aldehyde
α -Phellandren-8-ol	8.42	1169	0.01				Monoterp. alcohol
Terpinen-4-ol	8.79	1182	0.27	0.56	1522	10.16*	Monoterp. alcohol
Methyl salicylate	9.37	1201	0.01	0.05	1670	16.86*	Phenolic ester
α -Terpineol	9.46	1203	0.28	1.00	1616	14.00*	Monoterp. alcohol
Myrtenol	9.80	1210	0.02	23.92	1708	19.01*	Monoterp. alcohol
γ -Isogeraniol	10.33	1222	0.07				Monoterp. alcohol
Nerol	10.74	1231	11.93	11.77	1727	20.26	Monoterp. alcohol
Citronellol	11.12	1239	24.45	[23.92]	1708	19.01*	Monoterp. alcohol
Neral	11.23	1242	0.99	0.90	1595	12.91	Monoterp. aldehyde
<i>cis</i> -Isogeraniol	11.41	1246	0.13	0.13	1738	21.03	Monoterp. alcohol
Geraniol	12.23	1264	24.76	[23.94]	1780	23.87*	Monoterp. alcohol
<i>trans</i> -Isogeraniol	12.33	1266	0.04				Monoterp. alcohol
Geranial	12.76	1276	1.28	1.22	1641	15.34	Monoterp. aldehyde
Methyl geranate	15.46	1323	0.06	0.19	1627	14.59*	Monoterp. ester
Citronellyl acetate	17.26	1350	0.39	0.40	1601	13.18*	Monoterp. ester
Eugenol	17.71*	1357	1.71	1.82	2053	38.87*	Phenylpropanoid
Neryl acetate	17.71*	1357	[1.71]	0.14	1655	16.07	Monoterp. ester
β -Bourbonene	18.12	1364	0.06	0.06	1448	8.04	Sesquiterpene
β -Elemene	18.95*	1376	0.07	[0.56]	1522	10.16*	Sesquiterpene
<i>trans</i> - β -Damascenone?	18.95*	1376	[0.07]				Ionones and analogs
Geranyl acetate	19.39	1383	1.22	1.39	1688	17.84	Monoterp. ester
β -Caryophyllene	20.60	1400	0.66	0.61	1516	9.93*	Sesquiterpene
β -Copaene	21.66*	1413	1.39	[0.61]	1516	9.93*	Sesquiterpene
Methyleugenol	21.66*	1413	[1.39]	1.42	1929	33.90	Phenylpropanoid
α -Guaiene	22.09	1418	0.25	[0.56]	1522	10.16*	Sesquiterpene
α -Humulene	23.39*	1434	0.24	0.23	1578	12.27	Sesquiterpene
Dihydro- β -ionol	23.39*	1434	[0.24]				Ionones and analogs
Germacrene D	25.62	1460	0.67	[1.00]	1616	14.00*	Sesquiterpene
β -Selinene	26.22	1467	0.02	[1.00]	1616	14.00*	Sesquiterpene
Valencene	27.08	1477	0.05	[0.05]	1670	16.86*	Sesquiterpene
δ -Guaiene	27.52	1483	0.24	[0.19]	1627	14.59*	Sesquiterpene
Benzyl tiglate	27.77	1486	0.05				Phenolic ester
Pentacosane	28.69	1497	0.23	[1.31]	1493	9.13*	Alkane
(<i>E,E</i>)- α -Farnesene	29.08	1502	0.13	1.37	1698	18.32*	Sesquiterpene
δ -Cadinene	29.32	1505	0.05				Sesquiterpene
α -Elemol	32.60	1551	0.06	0.10	1985	36.48	Sesquiterp. alcohol
(<i>E</i>)-Nerolidol	33.82	1568	0.15	0.94	1996	37.00*	Sesquiterp. alcohol
(<i>E</i>)- <i>p</i> -Methoxy-cinnamaldehyde	34.86	1583	0.01				Phenylpropanoid
Phenylethyl tiglate	35.21	1588	0.02	0.02	2078	39.62	Phenolic ester
Hexadecane	35.84*	1597	0.05	[0.40]	1601	13.18*	Alkene
γ -Eudesmol	36.93	1623	0.11	[1.82]	2053	38.87*	Sesquiterp. alcohol

β -Eudesmol	37.87	1646	0.22	0.30	2115	40.74	Sesquiterp. alcohol
α -Eudesmol	38.05	1650	0.09	3.53	2100	40.34	Sesquiterp. alcohol
<i>trans</i> -8-Heptadecene	38.95	1673	0.19	0.36	1716	19.53	Alkene
(2 <i>Z</i> ,6 <i>E</i>)-Farnesol	39.81	1694	0.16	0.22	2231	43.71	Sesquiterp. alcohol
Heptadecane	39.95	1697	1.40	[1.37]	1698	18.32*	Alkane
(2 <i>E</i> ,6 <i>Z</i>)-Farnesal	40.37	1710	0.05				Sesquiterp. aldehyde
(2 <i>E</i> ,6 <i>E</i>)-Farnesol	40.71	1721	1.90	2.07	2276	44.74	Sesquiterp. alcohol
(2 <i>E</i> ,6 <i>E</i>)-Farnesal	41.33	1740	0.07				Sesquiterp. aldehyde
Mint sulfide	41.57	1748	0.01				Monoterp. sulfide
Benzyl benzoate	42.27	1770	0.09	0.06	2470	48.87	Phenolic ester
Octadecane	43.11	1796	0.14	[1.11]	1803	25.36*	Alkane
Phenylethyl benzoate	44.78	1857	0.04	0.05	2554	50.51	Phenolic ester
<i>trans</i> -9-Nonadecene	45.10	1869	2.62	2.15	1893	32.03	Alkene
Nonadecane	45.95	1900	8.88	10.72	1905	32.81	Alkane
Eicosene isomer	47.62	1966	0.09				Alkene
Eicosane	48.37	1996	0.68	[0.94]	1996	37.00*	Alkane
<i>trans</i> -10-Heneicosene	50.40	2084	0.11				Alkene
Heneicosane	50.73	2098	2.88	[1.82]	2053	38.87*	Alkane
Docosane	52.89	2196	0.06	0.09	2195	42.85	Alkane
Tricosane	55.00	2296	0.49	0.55	2298	45.25	Alkane
Tetracosane	57.00	2394	0.02				Alkane
Hexacosane	58.93	2494	0.11	0.06	2597	51.35	Alkane
Hexadecane	35.84*	1597	[0.05]	[0.40]	1601	13.18*	Alkane
Total identified			98.46%	98.01%			

*: 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 : 1.4615 \pm 0.0003 (20 °C)

CONCLUSION

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

17112-NGA6-1-DM_BP5



