

Date : August 30, 2017

SAMPLE IDENTIFICATION

Internal code : 17H28-PTH2-1-DM

Customer identification : Bergamot Mint - USA - BT010067R

Type : Essential oil

Source : *Mentha citrata*

Customer : Plant Therapy

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 : Sylvain Mercier, M. Sc., chimiste

Analysis date : 2017-08-30

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.	
Isoamyl alcohol	1.15	737	0.03	1.29	1140	3.00*	Aliphatic alcohol
2-Methylbutyl alcohol	1.18	741	0.02	[1.29]	1140	3.00*	Aliphatic alcohol
α -Thujene	3.31	920	0.02	0.03	956	1.26	Monoterpene
α -Pinene	3.42	927	0.10	0.08	944	1.21	Monoterpene
Sabinene	4.14	969	0.12	0.13	1059	2.07	Monoterpene
β -Pinene	4.20	973	0.98	0.94	1040	1.90	Monoterpene
Myrcene	4.48	989	0.91	0.90	1115	2.67*	Monoterpene
Octen-3-ol	4.52	992	0.07	0.10	1404	6.99*	Aliphatic alcohol
α -Terpinene	4.94	1015	0.03	[0.90]	1115	2.67*	Monoterpene
para-Cymene	5.14	1025	0.17	0.21	1211	3.92	Monoterpene
Limonene	5.17	1027	0.94	[1.29]	1140	3.00*	Monoterpene
β -Phellandrene	5.20	1029	0.02	[1.29]	1140	3.00*	Monoterpene
1,8-Cineole	5.23	1031	0.28	[1.29]	1140	3.00*	Monoterp. ether
<i>cis</i> - β -Ocimene	5.35	1037	0.95	1.13	1191	3.62*	Monoterpene
<i>trans</i> - β -Ocimene	5.53	1047	0.77	0.75	1205	3.83	Monoterpene
γ -Terpinene	5.72	1057	0.19	[1.13]	1191	3.62*	Monoterpene
<i>cis</i> -Linalool oxide (fur.)	6.01	1073	0.05	0.05	1377	6.49	Monoterp. alcohol
Terpinolene	6.20	1083	0.16	0.16	1226	4.15	Monoterpene
<i>trans</i> -Linalool oxide (fur.)	6.33	1090	0.08	0.06	1410	7.14	Monoterp. alcohol
Linalool	6.86*	1112	41.96	41.36	1501	9.43*	Monoterp. alcohol
Octen-3-yl acetate	6.86*	1112	[41.96]	0.18	1332	5.75	Aliphatic ester
Octan-3-yl acetate	7.06	1119	0.20	0.20	1293	5.15	Aliphatic ester
Menthone	8.04	1155	0.10	0.10	1389	6.67	Monoterp. ketone
Pinocamphone	8.16	1159	0.03	0.03	1426	7.52	Monoterp. ketone
Isomenthone	8.30	1164	0.04	[0.10]	1404	6.99*	Monoterp. ketone
Isopinocamphone	8.64	1177	0.95	[41.36]	1501	9.43*	Monoterp. alcohol
Menthol	8.86*	1185	0.92	0.83	1570	11.97	Monoterp. alcohol
Terpinen-4-ol	8.86*	1185	[0.92]	3.16	1523	10.22*	Monoterp. alcohol
α -Terpineol	9.53	1205	2.76	3.46	1621	14.24*	Monoterp. alcohol
Nerol	10.70	1230	0.51	0.54	1727	20.29	Monoterp. alcohol
Linalyl acetate	11.65	1251	37.46	37.86	1510	9.73	Monoterp. ester
Geraniol	11.91	1257	1.19	1.16	1779	23.78	Monoterp. alcohol
Menthyl acetate	13.35	1289	0.05	[41.36]	1501	9.43*	Monoterp. ester
Citronellyl acetate	17.23	1350	0.04	0.03	1605	13.42	Monoterp. ester
Neryl acetate	17.87	1360	0.67	0.75	1659	16.26*	Monoterp. ester
β -Bourbonene	18.12	1364	0.04	0.94	1451	8.12	Sesquiterpene
β -Elemene	18.93	1376	0.07	[3.16]	1523	10.22*	Sesquiterpene
Geranyl acetate	19.39	1383	1.27	1.32	1693	18.02	Monoterp. ester
β -Caryophyllene	20.64	1401	2.86	[3.16]	1523	10.22*	Sesquiterpene
α -Humulene	23.38	1433	0.10	0.08	1582	12.44	Sesquiterpene
<i>trans</i> - β -Farnesene	24.50	1447	0.19	[3.46]	1621	14.24*	Sesquiterpene

Germacrene D	25.61	1460	0.53	0.86	1627	14.59	Sesquiterpene
γ -Cadinene	28.69	1497	0.06	[0.75]	1659	16.26*	Sesquiterpene
α -Elemol	32.63	1552	0.16	0.18	1988	36.61	Sesquiterp. alcohol
Caryophyllene oxide	33.82	1569	0.18	0.12	1843	28.37	Sesquiterp. ether
Viridiflorol	34.84	1583	0.31	0.32	1973	35.91	Sesquiterp. alcohol
β -Eudesmol	37.88	1646	0.09	0.09	2105	40.47	Sesquiterp. alcohol
Total identified			98.63%	99.40%			

*: 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 : 1.4605 \pm 0.0003 (20 °C)

CONCLUSION

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

17H28-PTH2-1-DM_BP5



