

GC/MS BATCH NUMBER: O10101

ESSENTIAL OIL: BLOOD ORANGE
BOTANICAL NAME: CITRUS SINENSIS
ORIGIN: ITALY

KEY CONSTITUENTS PRESENT IN THIS BATCH OF BLOOD ORANGE OIL	%
LIMONENE	94.8
MYRCENE	1.9
α -PINENE	0.6
LINALOOL	0.4
OCTANAL	0.3
SABINENE	0.3
GERANIAL	0.2
NERAL	0.1
NONANAL	0.1
β -PINENE	0.03

Comments from Robert Tisserand: A very nice blood orange oil. This would conform to the ISO standard for sweet orange oil (blood orange is a type of sweet orange) except that nonanal is slightly high, and trans-alpha-bergamotene appears instead of valencene. This is probably what gives blood orange its characteristic odor.

Date : August 26, 2015

SAMPLE IDENTIFICATION

Internal code : 15H21-PTH8-1-AS

Customer identification : Blood Orange - Italy - O1010153

Type : Essential Oil

Source : *Citrus sinensis*

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.

Analysis date : 2015-08-23

IDENTIFIED COMPOUNDS

Identification	Colonne: BP5			Colonne: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
Hexanal	1.30	803	0.02	0.00	1044	1.52	Aliphatic aldehyde
α -Pinene	2.80	926	0.55	0.55	984	1.06	Monoterpene
Sabinene	3.48	969	0.30	0.31	1083	1.87	Monoterpene
β -Pinene	3.52	971	0.03	0.02	1063	1.69	Monoterpene
Myrcene	3.84	991	1.93	1.92	1135	2.46	Monoterpene
Δ 3-Carene	4.07*	1005	0.08	0.06	1111	2.15	Monoterpene
α -Phellandrene	4.07*	1005	[0.08]	0.03	1126	2.34	Monoterpene
Octanal	4.20	1013	0.34	0.32	1254	4.05	Aliphatic aldehyde
1,8-Cineole	4.62*	1037	95.14	0.32	1172	2.92	Monoterp. ether
Limonene	4.62*	1037	[95.14]	94.79	1171	2.90	Monoterpene
<i>trans</i> - β -Ocimene	4.85	1050	0.03	0.01	1221	3.58	Monoterpene
Linalool	5.93	1109	0.40	0.42	1517	8.85	Monoterp. alcohol
Nonanal	5.98	1112	0.11	0.09	1357	5.58	Monoterp. aldehyde
Citronellal	6.91	1154	0.04	0.04	1434	6.94	Monoterp. aldehyde
α -Terpineol	8.09	1205	0.04	0.03	1641	13.53	Monoterp. alcohol
Decanal	8.36	1212	0.43	0.34	1455	7.37	Aliphatic aldehyde
Neral	9.45	1242	0.10	0.09	1618	12.43	Monoterp. aldehyde
Geranial	10.69	1275	0.18	0.17	1667	14.77	Monoterp. aldehyde
<i>trans</i> - α -Bergamotene	18.47	1415	0.06	0.02	1525	9.13	Sesquiterpene
β -Bisabolene	25.23	1504	0.04	0.02	1660	14.40	Sesquiterpene
β -Sinensal	37.80	1693	0.03				Sesquiterpene
α -Sinensal	39.92	1753	0.02				Sesquiterpene
Total identified			99.87%	99.55%			

*: 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 yellow-orange liquid
Refractive index : 1.4730 ± 0.0003 (20 °C)

CONCLUSION

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

Checked and approved by :

Alexis St-Gelais, M. Sc., chimiste 2013-174

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