



GC/MS BATCH NUMBER: Y40100

ESSENTIAL OIL: YUZU

BOTANICAL NAME: CITRUS X JUNOS

ORIGIN: JAPAN

KEY CONSTITUENTS PRESENT IN THIS BATCH OF YUZU OIL	%
LIMONENE	79.4
γ-TERPINENE	9.1
β-PHELLANDRENE	1.9
MYRCENE	1.9
LINALOOL	1.5
α-PINENE	1.3

Comments from Robert Tisserand: Develops a typical delicate Yuzu odor. No sign of adulteration.

Date : September 30, 2016

SAMPLE IDENTIFICATION

Internal code : 16I16-PTH12-1-DM

Customer identification : Yuzu - Y4010059R

Type : Essential oil

Source : *Citrus x junos*

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 : 2016-09-26

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.	
α-Thujene	3.25	918	0.34	0.45	952	0.89	Monoterpene
α-Pinene	3.35	924	1.30	1.21	944	0.85	Monoterpene
Camphene	3.64	941	0.01	0.01	995	1.07	Monoterpene
Sabinene	4.07	968	0.33	0.31	1054	1.48	Monoterpene
β-Pinene	4.13	971	0.67	0.66	1037	1.35	Monoterpene
Myrcene	4.42	989	1.85	1.85	1115	1.97	Monoterpene
Pseudolimonene	4.63	1001	0.01	0.30	1107	1.91*	Monoterpene
α-Phellandrene	4.68*	1004	0.36	[0.30]	1107	1.91*	Monoterpene
Δ ³ -Carene	4.68*	1004	[0.36]	0.01	1087	1.75	Monoterpene
Octanal	4.81	1011	0.02	0.02	1231	3.37	Aliphatic aldehyde
α-Terpinene	4.87	1015	0.18	0.26	1121	2.05	Monoterpene
Limonene	5.22*	1034	82.02	79.38	1151	2.40	Monoterpene
para-Cymene	5.22*	1034	[82.02]	0.92	1208	3.05	Monoterpene
β-Phellandrene	5.22*	1034	[82.02]	1.88	1152	2.42	Monoterpene
cis-β-Ocimene	5.29	1038	0.01	9.05	1191	2.87*	Monoterpene
trans-β-Ocimene	5.47	1048	0.18	0.20	1201	2.99	Monoterpene
γ-Terpinene	5.68	1060	9.05	[9.05]	1191	2.87*	Monoterpene
Terpinolene	6.12	1083	0.36	0.33	1223	3.26	Monoterpene
para-Cymenene	6.34	1095	0.04	0.03	1372	5.35	Monoterpene
Linalool	6.66	1107	1.54	1.55	1490	7.38	Monoterp. alcohol
cis-Limonene oxide	7.36	1133	0.01	0.01	1384	5.52	Monoterp. ether
trans-Limonene oxide	7.43	1136	0.02	0.01	1406	5.84	Monoterp. ether
Terpinen-4-ol	8.68	1183	0.07	0.10	1529	8.17	Monoterp. alcohol
α-Terpineol	9.35	1203	0.06	0.17	1623	10.97*	Monoterp. alcohol
Thymol	15.51	1326	0.08	0.08	2112	37.31	Monoterp. alcohol
β-Caryophyllene	20.23	1398	0.11	0.07	1526	8.09	Sesquiterpene
α-Humulene	23.00	1432	0.02				Sesquiterpene
trans-β-Farnesene	24.18	1446	0.26	0.23	1625	11.06	Sesquiterpene
Germacrene D	25.20	1458	0.10	[0.17]	1623	10.97*	Sesquiterpene
Bicyclogermacrene	26.44	1472	0.43	0.42	1646	11.96	Sesquiterpene
δ-Cadinene	28.92	1503	0.08	0.06	1678	13.35	Sesquiterpene
Germacrene B	31.62	1540	0.09	0.09	1726	15.49	Sesquiterpene
Spathulenol	33.72	1569	0.13	0.12	2027	33.95	Sesquiterp. alcohol
Isospathulenol	36.88	1626	0.02	0.04	2133	37.99*	Sesquiterp. alcohol
τ-Muurolol	37.45	1640	0.01	0.01	2093	36.68	Sesquiterp. alcohol
α-Cadinol	37.90	1651	0.03	[0.04]	2133	37.99*	Sesquiterp. alcohol
Total identified			99.79%	99.83%			

*: 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 : 1.4710 ± 0.0003 (20 °C)

CONCLUSION

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



