

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

Note: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.

This report is digitally signed, it is only considered valid if the digital signature is intact.

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
Bicyclgermacrene	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.



