GC-MS Profiling Analysis
Prepared for Jade Bloom, Inc

Date: March 2, 2018
Sample: Mandarin
Type: Essential Oil
Source: *Citrus reticulata var. Clementina*
Batch: 4318964

ANALYSIS SUMMARY

Identification	DB-5 (%)	DB-WAX (%)	Classe
Hexanal	tr	tr	Aliphatic aldehyde
α-Thujene	0.02	0.02	Monoterpene
α-Pinene	0.51	0.52	Monoterpene
β-Pinene	0.89*	0.09	Monoterpene
Sabinene	[0.89]*	0.82	Monoterpene
Myrcene	1.80	1.83	Monoterpene
α-Phellandrene	0.19	0.03	Monoterpene
Octanal	[0.19]	0.17	Aliphatic aldehyde
Δ3-Carene	0.04	0.04	Monoterpene
α-Terpinene	0.01	0.01	Monoterpene
para-Cymene	89.88	0.07	Monoterpene
Limonene	[89.88]*	90.22	Monoterpene
β-Phellandrene	[89.88]*	0.29*	Monoterpene
1,8-Cineole	[89.88]*	[0.29]*	Monoterpenic ether
(*Z*)-β-Ocimene	0.04	0.01	Monoterpene
(*E*)-β-Ocimene	0.17	0.10	Monoterpene
γ-Terpinene	0.37	0.38	Monoterpene
cis-Sabinene hydrate	0.01	0.01*	Monoterpenic alcohol
cis-Linalool oxide (fur.)	tr	0.02*	Monoterpenic alcohol
Octanol	0.01	tr	Aliphatic alcohol
Terpinolene	0.03	0.03	Monoterpene
trans-Sabinene hydrate	tr	tr	Monoterpenic alcohol
Linalool	0.32	0.33	Monoterpenic alcohol
Nonanal	0.02	0.02	Aliphatic aldehyde
cis-Limonene oxide	0.01	0.01	Monoterpenic ether
trans-Limonene oxide	0.02	[0.02]*	Monoterpenic ether
Epoxyterpinolene	tr	tr	Monoterpenic ether
Citronellal	0.05	0.05	Monoterpenic aldehyde
Terpinen-4-ol	tr	0.01	Monoterpenic alcohol
α-Terpineol	0.03	0.04	Monoterpenic alcohol
Unknown	0.01	0.01	Unknown
Decanal	0.21	0.20	Aliphatic aldehyde
Octyl acetate	0.01	0.01	Aliphatic ester
trans-Carveol	0.01	0.01	Monoterpenic alcohol
cis-Carveol	0.02	0.01	Monoterpenic alcohol
Neral	0.05*	0.01	Monoterpenic aldehyde
Carvone	[0.05]*	0.09*	Monoterpenic ketone
Citronellol	[0.05]*	0.24	Monoterpenic alcohol
(2*E*)-Decenal	0.01	0.01	Aliphatic aldehyde
Perillaldehyde	0.03*	0.02	Monoterpenic aldehyde
Isopiperitenone	[0.03]*	0.01*	Monoterpenic ketone
Geranial	0.02	0.22*	Monoterpenic aldehyde
Limonen-10-ol	0.01	0.01	Monoterpenic alcohol
Undecanal	0.01	tr	Aliphatic aldehyde
(2*E*,4*E*)-Decadienal	0.01	[0.01]*	Aliphatic aldehyde
δ-Elemene	0.01	[0.01]*	Sesquiterpene
α-Terpinyl acetate	0.01	tr	Monoterpenic ester
Citronellyl acetate	0.03	0.02	Monoterpenic ester

Neryl acetate	0.01	0.01	Monoterpenic ester
α-Copaene	0.04	0.04	Sesquiterpene
cis-β-Elemene	tr	tr	Sesquiterpene
Geranyl acetate	0.05*	0.05	Monoterpenic ester
β-Cubebene	[0.05]*	0.04	Sesquiterpene
β-Elemene	0.06	0.08*	Sesquiterpene
Dodecanal	0.05*	0.03	Aliphatic aldehyde
Perillyl acetate	[0.05]*		Monoterpenic ester
β-Caryophyllene	0.02	[0.08]*	Sesquiterpene
β-Copaene	0.02	0.02	Sesquiterpene
α-Humulene	0.03	0.02	Sesquiterpene
(2*Z*)-Dodecenal	0.02		Aliphatic aldehyde
(*E*)-β-Farnesene	0.05	0.05	Sesquiterpene
(2*E*)-Dodecenal	0.01	0.01	Aliphatic aldehyde
γ-Muurolene	0.01	0.02	Sesquiterpene
Germacrene D	0.09	0.08	Sesquiterpene
Valencene	0.05	0.06	Sesquiterpene
α-Selinene	0.08	[0.09]*	Sesquiterpene
Bicyclogermacrene	1.02	1.05*	Sesquiterpene
α-Muurolene	0.08	[1.05]*	Sesquiterpene
β-Bisabolene	0.22	[0.22]*	Sesquiterpene
(3*E*,6*E*)-α-Farnesene	0.25	0.24	Sesquiterpene
δ-Cadinene	0.49	0.05	Sesquiterpene
α-Elemol	0.02	0.01	Sesquiterpenic alcohol
Germacrene B	0.03	0.02	Sesquiterpene
(*E*)-Nerolidol	0.02	0.02	Sesquiterpenic alcohol
Germacrene D-4-ol	0.01	tr	Sesquiterpenic alcohol
Caryophyllene oxide	tr	tr	Sesquiterpenic ether
Tetradecanal	0.02		Aliphatic aldehyde
(2*E*)-Tetradecenal	tr		Aliphatic aldehyde
β-Sinensal	0.10	0.10	Sesquiterpenic aldehyde
α-Sinensal	0.26	0.25	Sesquiterpenic aldehyde
Myristic acid	0.08	0.10	Aliphatic acid
Nootkatone	0.01	0.01	Sesquiterpenic ketone
Palmitic acid	0.11		Aliphatic acid
Linoleic acid	0.09	0.08	Aliphatic acid
Oleic acid	0.08	0.09	Aliphatic acid
cis-Vaccenic acid?	0.06		Aliphatic acid
Stearic acid	0.02	0.02	Aliphatic acid
Meranzin	0.01		Coumarin
α-Tocopherol?	0.01		Tocopherol
Tangeretin	0.10		Flavonoid
3,3',4',5,6,7,8-Heptamethoxyflavone	0.14		Flavonoid
Nobiletin	0.04		Flavonoid
Total identified	**98.76%**	**98.51%**	

*: Two or more compounds are coeluting on this column
[xx]: Duplicate percentage due to coelutions, not taken account in the identified total
tr: The compound has been detected below 0.005% of total signal.

Note: no correction factor was applied

PHYSICOCHEMICAL DATA

Physical aspect: Bright yellow liquid
Refractive index: 1.4728 ± 0.0003 (20 °C)

CONCLUSION

No adulterant, contaminant or diluent has been detected using this method.