

## GC-MS Profiling Analysis Prepared for Jade Bloom, Inc

**Date:** January 30, 2018

**Sample:** Orange Oil

**Type:** Essential Oil

**Source:** *Citrus sinensis*

**Batch:** #Lot 112117-11

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
$\alpha$ -Thujene	3.31	920	0.01	0.01	955	1.04	Monoterpene
$\alpha$ -Pinene	3.41	926	0.53	0.52	944	1.00	Monoterpene
Sabinene	4.13	968	0.52	0.51	1062	1.73	Monoterpene
$\beta$ -Pinene	4.20	972	0.07	0.07	1041	1.57	Monoterpene
Myrcene	4.48	989	1.92	1.90	1118	2.26	Monoterpene
$\Delta$ 3-Carene	4.76*	1005	0.23	0.19	1095	2.00	Monoterpene
$\alpha$ -Phellandrene	4.76*	1005	[0.23]	0.04	1111	2.18	Monoterpene
Octanal	4.87	1011	0.20	0.19	1232	3.76	Aliphatic aldehyde
Limonene	5.31	1035	93.51	93.73	1155	2.72	Monoterpene
<i>cis</i> - $\beta$ -Ocimene	5.37	1038	0.01	0.03	1187	3.14*	Monoterpene
<i>trans</i> - $\beta$ -Ocimene	5.54	1047	0.02	0.02	1202	3.32	Monoterpene
$\gamma$ -Terpinene	5.73	1057	0.03	[0.03]	1187	3.14*	Monoterpene
<i>cis</i> -Sabinene hydrate	6.07	1076	0.01	0.01	1410	6.38	Monoterp. alcohol
Octanol	6.20*	1083	0.08	0.05	1509	8.45	Aliphatic alcohol
Terpinolene	6.20*	1083	[0.08]	0.03	1221	3.60	Monoterpene
Linalool	6.70	1106	0.37	0.37	1502	8.23	Monoterp. alcohol
Nonanal	6.78	1109	0.04	0.03	1337	5.26	Aliphatic aldehyde
<i>cis</i> -Limonene oxide	7.35	1129	0.01	0.01	1374	5.81	Monoterp. ether
<i>trans</i> -Limonene oxide	7.47	1134	0.01	0.01	1387	5.99	Monoterp. ether
Citronellal	7.97	1152	0.02	0.03	1424	6.67	Monoterp. aldehyde
$\alpha$ -Terpineol	9.48	1203	0.12	0.12	1628	12.55	Monoterp. alcohol
Decanal	9.79	1210	0.17	0.15	1436	6.90	Aliphatic aldehyde
Neral	11.16	1240	0.04	0.04	1605	11.47	Monoterp. aldehyde
Geranial	12.68	1273	0.08	0.07	1651	13.61*	Monoterp. aldehyde
Undecanal	14.69	1311	0.01	0.01	1539	9.42	Aliphatic aldehyde
$\beta$ -Caryophyllene	21.51	1410	0.02	0.02	1515	8.62	Sesquiterpene
Dodecanal	21.71	1413	0.03	[0.07]	1651	13.61*	Aliphatic aldehyde
Valencene	26.59	1471	0.02	0.03	1669	14.42	Sesquiterpene
$\delta$ -Cadinene	29.33	1504	0.03	0.02	1675	14.72	Sesquiterpene
$\beta$ -Sinensal	39.78	1692	0.02	0.02	2127	39.30	Sesquiterp. aldehyde
$\alpha$ -Sinensal	41.72	1752	0.01	0.02	2228	42.00	Sesquiterp. aldehyde
Myristic acid	43.03	1793	0.08	0.10	2643	50.63	Fatty acid
Palmitic acid	48.17	1988	0.07	0.11	2855	54.41	Fatty acid
Linoleic acid	51.96	2153	0.04	0.05	3097	58.37	Fatty acid
Tangeretin	70.28	3167	0.14				Flavonoid
Nobiletin	73.16	3338	0.38				Flavonoid
Hexamethoxyflavone isomer?	73.48	3354	0.41				Flavonoid
Heptamethoxyflavone	73.76	3369	0.05				Flavonoid

isomer?			
<b>Total identified</b>	<b>99.31%</b>	<b>98.51%</b>	

\*: 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 liquid

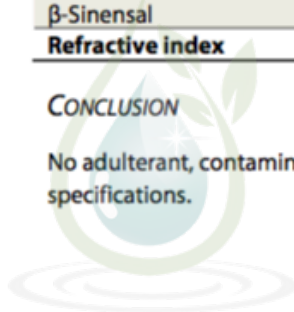
**Refractive index :** 1.4725 ± 0.0003 (20 °C)

#### COMPLIANCE WITH ISO 3140:2011 (CITRUS SINENSIS)

Compound	Min. Content	Max. Content	Observed Content	Complies?
α-Pinene	0.4	0.8	0.5	Yes
β-Pinene	0.02	0.15	0.07	Yes
Sabinene	0.2	0.8	0.5	Yes
Myrcene	1.5	3.5	1.9	Yes
Limonene	93.0	96.0	93.7	Yes
Octanal	0.1	0.4	0.2	Yes
Nonanal	0.01	0.06	0.04	Yes
Decanal	0.1	0.7	0.2	Yes
Linalool	0.15	0.7	0.37	Yes
Neral	0.03	0.1	0.04	Yes
Valencene	0.01	0.4	0.02	Yes
Geranial	0.05	0.2	0.08	Yes
β-Sinensal	0.01	0.06	0.02	Yes
<b>Refractive index</b>	<b>1.470</b>	<b>1.476</b>	<b>1.4725</b>	<b>Yes</b>

#### CONCLUSION

No adulterant, contaminant or diluent were detected using this method. The oil complies with the ISO specifications.



Jade Bloom

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