



PLANT THERAPY

100% PURE ESSENTIAL OILS

## GC/MS BATCH NUMBER: F50103

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**ESSENTIAL OIL:** FRANKINCENSE SERRATA ORGANIC

**BOTANICAL NAME:** BOSWELLIA SERRATA

**ORIGIN:** INDIA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF FRANKINCENSE SERRATA ORGANIC OIL	%
$\alpha$ -THUJENE	68.7
SABINENE	6.0
$\alpha$ -PINENE	5.0
$\Delta$ 3-CARENE	3.6
$\alpha$ -PHELLANDRENE	2.8
METHYLCHAVICOL + $\alpha$ -TERPINEOL	2.3
LIMONENE	1.9
p-CYMENE	1.4

Comments from Robert Tisserand: Light, pine-incense odor profile. Constituents are in expected amounts.

**Date :** April 13, 2017

*SAMPLE IDENTIFICATION*

**Internal code :** 17D12-PTH2-1-DM

**Customer identification :** ORG Frankincense Serrata - F50103612R

**Type :** Essential oil

**Source :** *Boswellia serrata*

**Customer :** Plant Therapy

*ANALYSIS*

**Method :** PC-PA-001-15E06, "Analysis of the composition of a liquid essential oil by GC-FID" (in French).

**Analyst :** Sylvain Mercier, M. Sc., chimiste

**Analysis date :** 2017-04-13

Checked and approved by :

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Sylvain Mercier, M. Sc., chimiste 2014-005

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IDENTIFIED COMPOUNDS

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
Toluene	1.30	757	0.01	74.15	968	1.27*	Simple phenolic
Hashishene	3.21	916	0.08	[74.15]	968	1.27*	Monoterpene
$\alpha$ -Thujene	3.39	927	68.66	[74.15]	968	1.27*	Monoterpene
$\alpha$ -Pinene	3.45	931	4.99	[74.15]	968	1.27*	Monoterpene
Unknown (m/z = 91, 92 (49), 65 (12)... 134? (2))	3.64	942	0.31	0.35	1061	2.03	Monoterpene
Camphene	3.70	946	0.07	0.07	994	1.43	Monoterpene
Sabinene	4.14	972	5.98	5.88	1055	1.96	Monoterpene
$\beta$ -Pinene	4.19	975	0.36	0.35	1034	1.78	Monoterpene
Myrcene	4.46	991	0.96	1.00	1112	2.51	Monoterpene
$\alpha$ -Phellandrene	4.76*	1008	6.42	2.77	1106	2.44	Monoterpene
$\Delta^3$ -Carene	4.76*	1008	[6.42]	3.59	1084	2.26	Monoterpene
$\alpha$ -Terpinene	4.92	1017	0.35	0.35	1118	2.60	Monoterpene
para-Cymene	5.11	1027	1.42	1.43	1203	3.72	Monoterpene
Limonene	5.15	1030	1.90	1.71	1136	2.83	Monoterpene
$\beta$ -Phellandrene	5.18	1031	0.58	0.59	1142	2.91*	Monoterpene
1,8-Cineole	5.22	1033	0.02	[0.59]	1142	2.91*	Monoterp. ether
cis- $\beta$ -Ocimene	5.33	1039	0.46	0.38	1182	3.42	Monoterpene
trans- $\beta$ -Ocimene	5.51	1049	0.23	0.20	1197	3.63	Monoterpene
Lavender lactone	5.62	1055	0.06	0.05	1603	12.79	Lactone
$\gamma$ -Terpinene	5.69	1059	0.73	0.77	1184	3.45	Monoterpene
cis-Sabinene hydrate	5.99	1075	0.08	0.08	1400	6.72	Monoterp. alcohol
Isoterpinolene	6.09	1081	0.01	0.01	1214	3.87	Monoterpene
Terpinolene	6.17	1085	0.28	0.26	1218	3.93	Monoterpene
para-Cymenene	6.36	1095	0.02	0.02	1360	6.09	Monoterpene
Perillene	6.49	1102	0.01	0.02	1339	5.76	Monoterp. ether
Linalool	6.61*	1106	0.15	0.10	1487	8.75	Monoterp. alcohol
trans-Sabinene hydrate	6.61*	1106	[0.15]	0.04	1478	8.53	Monoterp. alcohol
$\beta$ -Thujone	6.95	1119	0.20	0.15	1357	6.05	Monoterp. ketone
trans-Pinocarveol	7.53	1140	0.05	2.25	1576	11.80*	Monoterp. alcohol
Borneol	8.46	1174	0.08	0.11	1618	13.47	Monoterp. alcohol
Terpinen-4-ol	8.67	1182	0.60	0.60	1522	9.79	Monoterp. alcohol
Myrtenal	9.31	1203	0.03	0.04	1533	10.22	Monoterp. aldehyde
Methylchavicol	9.39*	1205	2.31	[2.25]	1576	11.80*	Phenylpropanoid
$\alpha$ -Terpineol	9.39*	1205	[2.31]	0.18	1622	13.72*	Monoterp. alcohol
Linalyl acetate	11.31	1247	0.04	0.06	1496	8.98	Monoterp. ester
Bornyl acetate	12.81	1281	0.02	0.02	1492	8.88	Monoterp. ester
$\alpha$ -Cubebene	15.86	1333	0.01	0.01	1410	6.92	Sesquiterpene
$\alpha$ -Copaene	17.55	1359	0.11	0.10	1424	7.26	Sesquiterpene
$\beta$ -Bourbonene	17.98	1365	0.46	0.45	1444	7.73	Sesquiterpene
$\beta$ -Caryophyllene	20.44	1402	0.06	0.07	1512	9.43	Sesquiterpene

Methyleugenol	21.24	1412	0.21	0.16	1924	32.98	Phenylpropanoid
<i>trans</i> - $\alpha$ -Bergamotene	21.99	1421	0.05	0.05	1519	9.69	Sesquiterpene
6,9-Guaiadiene	22.37	1425	0.04	0.03	1526	9.94	Sesquiterpene
Germacrene D	25.35	1461	0.34	0.35	1614	13.28	Sesquiterpene
$\beta$ -Selinene	25.44	1462	0.17	[0.18]	1622	13.72*	Sesquiterpene
$\gamma$ -Cadinene	28.38	1497	0.01	0.22	1657	15.51*	Sesquiterpene
$\delta$ -Cadinene	29.04	1506	0.02	0.04	1665	15.93	Sesquiterpene
Kessane	29.26	1509	0.18	[0.22]	1657	15.51*	Sesquiterp. ether
Dimer of $\alpha$ -phellandrene II	42.21	1774	0.05	0.05	1839	26.91	Diterpene
meta-Camphorene	46.54	1931	0.03	0.03	2134	40.75	Diterpene
Serratol	51.24	2131	0.14	0.15	2570	50.35	Diterp. alcohol
<b>Total identified</b>			<b>99.04%</b>	<b>98.94%</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 :** Clear liquid

**Refractive index :** 1.4588  $\pm$  0.0003 (20 °C)

#### CONCLUSION

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



