



**PLANT THERAPY**  
100% PURE ESSENTIAL OILS

## GC/MS BATCH NUMBER: F30103

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**ESSENTIAL OIL:** FRANKINCENSE CARTERI  
**BOTANICAL NAME:** BOSWELLIA CARTERII  
**ORIGIN:** SOMALIA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF FRANKINCENSE CARTERI OIL	%
$\alpha$ -PINENE	54.9
$\beta$ -PINENE	6.5
METHYL DECYL ETHER	5.0
SABINENE	4.
LIMONENE	3.9
MYRCENE	3.0
OCTYL ACETATE	2.0
METHYL OCTYL ETHER	2.0
p-CYMENE	1.6
$\alpha$ -THUJENE	1.5

Comments from Robert Tisserand: Delightful fresh, lemony odor. No carcinogens, which is nice. Looks good on paper. Recommended. 2nd test - virtually identical

**Date :** February 24, 2017

*SAMPLE IDENTIFICATION*

**Internal code :** 17B09-PTH15-1-DM

**Customer identification :** Frankincense Carterii - Somaliland - F30103610R

**Type :** Essential oil

**Source :** *Boswellia carterii*

**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 :** 2017-02-24

Checked and approved by :

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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.	
Toluene	1.35	756	0.07	55.96	970	1.34*	Simple phenolic
Tricyclene	3.29*	913	0.92	0.07	932	1.16	Monoterpene
Hashishene	3.29*	913	[0.92]	[55.96]	970	1.34*	Monoterpene
α-Thujene	3.40	920	1.46	1.78	971	1.36	Monoterpene
α-Pinene	3.58	930	54.86	[55.96]	970	1.34*	Monoterpene
Unknown (m/z = 91, 92 (49), 65 (12)... 134? (2))	3.73	939	0.08	0.08	1070	2.24	Monoterpene
Camphene	3.79*	943	0.87	0.86	999	1.59	Monoterpene
α-Fenchene	3.79*	943	[0.87]	0.05	995	1.56	Monoterpene
Thuja-2,4(10)-diene	3.88	948	0.68	4.80	1063	2.16*	Monoterpene
Sabinene	4.23	969	4.23	[4.80]	1063	2.16*	Monoterpene
β-Pinene	4.30	973	6.51	6.49	1044	1.99	Monoterpene
Myrcene	4.56	989	3.02	3.00	1119	2.75	Monoterpene
Δ3-Carene	4.83*	1004	0.58	0.11	1098	2.45	Monoterpene
α-Phellandrene	4.83*	1004	[0.58]	1.95	1114	2.67*	Monoterpene
Octanal	4.96	1011	0.06	0.03	1233	4.34	Aliphatic aldehyde
α-Terpinene	5.01	1014	0.12	0.12	1126	2.83	Monoterpene
para-Cymene	5.20	1024	1.57	1.58	1211	4.01*	Monoterpene
Limonene	5.26*	1027	5.66	3.86	1145	3.09	Monoterpene
Methyl octyl ether	5.26*	1027	[5.66]	[1.95]	1114	2.67*	Aliphatic ether
β-Phellandrene	5.32	1030	0.28	0.45	1150	3.15*	Monoterpene
1,8-Cineole	5.35	1032	0.03	[0.45]	1150	3.15*	Monoterp. ether
cis-β-Ocimene	5.42	1036	0.46	0.47	1190	3.68	Monoterpene
trans-β-Ocimene	5.60	1046	0.16	0.15	1204	3.90	Monoterpene
γ-Terpinene	5.78	1056	0.23	0.29	1192	3.71	Monoterpene
cis-Sabinene hydrate	6.09	1073	0.03	0.33	1414	7.37	Monoterp. alcohol
Isoterpinolene	6.19	1078	0.24	0.28	1215	4.06	Monoterpene
Terpinolene	6.27	1082	0.06	0.07	1225	4.22	Monoterpene
para-Cymenene	6.45	1092	0.10	0.08	1368	6.46	Monoterpene
Perillene	6.49	1094	0.07	0.07	1346	6.10	Monoterp. ether
Linalool	6.70	1101	0.11	0.12	1496	9.45	Monoterp. alcohol
α-Thujone	6.90	1109	0.10	0.10	1358	6.29	Monoterp. ketone
β-Thujone	7.09	1116	0.05	0.05	1366	6.41	Monoterp. ketone
Methyl nonyl ether	7.26	1122	0.32	[1.58]	1211	4.01*	Aliphatic ether
cis-para-Menth-2-en-1-ol	7.32	1124	0.37	0.60	1503	9.73	Monoterp. alcohol
trans-Pinocarveol	7.62	1135	0.61	0.57	1569	12.23	Monoterp. alcohol
trans-para-Menth-2-en-1-ol	7.71	1138	0.18	0.14	1556	11.73	Monoterp. alcohol
trans-Verbenol	7.83	1143	0.62	0.62	1601	13.52	Monoterp. alcohol
α-Phellandren-8-ol analog	7.97	1148	0.17				Monoterp. alcohol
Pinocarvone	8.23	1157	0.08	0.08	1476	8.91	Monoterp. ketone
α-Phellandren-8-ol	8.32	1160	0.16				Monoterp. alcohol

Borneol	8.61	1171	0.05	0.19	1615	14.30*	Monoterp. alcohol
Sabinaketone	8.70	1175	0.25	0.28	1579	12.62	Normonoterp. ketone
Terpinen-4-ol	8.83	1179	0.37	0.24	1529	10.68	Monoterp. alcohol
para-Cymen-8-ol	9.28	1194	0.14	0.13	1766	23.37	Monoterp. alcohol
$\alpha$ -Terpineol	9.43*	1198	0.63	0.28	1622	14.65*	Monoterp. alcohol
$\beta$ -Phellandren-8-ol	9.43*	1198	[0.63]	0.34	1706	19.29	Monoterp. alcohol
Methylchavicol	9.43*	1198	[0.63]	0.11	1606	13.79	Phenylpropanoid
Verbenone	9.91	1208	0.37	0.33	1598	13.39	Monoterp. ketone
Octyl acetate	10.10	1213	2.03	2.11	1422	7.57	Aliphatic ester
Methyl decyl ether	10.63	1224	4.95	5.14	1319	5.66	Aliphatic ether
Methyl (E)-2-decenyl ether	11.31	1239	0.11				Aliphatic ether
3,5-Dimethoxytoluene	13.03	1277	0.14				Simple phenolic
Bornyl acetate	13.12	1280	0.32	0.41	1515	10.16	Monoterp. ester
Methyl undecyl ether	15.56	1320	0.01	0.02	1435	7.90	Aliphatic ether
$\alpha$ -Cubebene	16.23	1331	0.07	0.06	1403	7.12	Sesquiterpene
Cycloisosativene	17.24	1346	0.02	0.02	1405	7.17	Sesquiterpene
$\alpha$ -Copaene	17.95	1357	0.28	0.34	1428	7.72	Sesquiterpene
$\beta$ -Bourbonene	18.38	1363	0.41	0.49	1448	8.23	Sesquiterpene
$\beta$ -Elemene	19.14	1375	0.09	0.10	1518	10.29	Sesquiterpene
Geranyl acetate	19.60	1382	0.07	0.05	1690	18.29	Monoterp. ester
$\alpha$ -Gurjunene	19.82	1385	0.02	0.01	1469	8.74	Sesquiterpene
$\beta$ -Caryophyllene	20.83	1399	0.38	0.35	1526	10.60	Sesquiterpene
<i>trans</i> - $\alpha$ -Bergamotene	22.87	1423	0.24	0.24	1532	10.80	Sesquiterpene
6,9-Guaiadiene	23.23	1428	0.01	0.01	1548	11.41	Sesquiterpene
$\alpha$ -Humulene	23.61	1432	0.10	0.17	1591	13.01	Sesquiterpene
Germacrene D	25.82	1459	0.14	[0.19]	1615	14.30*	Sesquiterpene
$\beta$ -Selinene	26.43	1466	0.05	[0.28]	1622	14.65*	Sesquiterpene
$\alpha$ -Selinene	27.07	1474	0.04	0.04	1627	14.92	Sesquiterpene
$\alpha$ -Muurolene	27.53	1479	0.04	0.04	1639	15.60	Sesquiterpene
$\gamma$ -Cadinene	28.86	1496	0.12	0.09	1663	16.86	Sesquiterpene
$\delta$ -Cadinene	29.55	1505	0.18	0.17	1669	17.18	Sesquiterpene
<i>trans</i> -Calamenene	29.84	1509	0.03	0.03	1729	20.85	Sesquiterpene
Caryophyllene oxide	33.90	1566	0.10	0.07	1843	28.91	Sesquiterp. ether
Viridiflorol	34.76	1578	0.06	0.05	1973	36.27	Sesquiterp. alcohol
10-epi- $\gamma$ -Eudesmol	36.03	1599	0.17	0.15	2010	37.74	Sesquiterp. alcohol
$\tau$ -Cadinol	37.44	1633	0.06	0.07	2067	39.55	Sesquiterp. alcohol
$\alpha$ -Muurolol	37.70	1639	0.03	0.02	2105	40.69	Sesquiterp. alcohol
Incensole	51.40	2130	0.25	0.20	2574	51.11	Diterp. alcohol
<b>Total identified</b>							
			<b>97.37%</b>	<b>97.48%</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 :** Faintly yellow liquid

**Refractive index :**  $1.4635 \pm 0.0003$  (20 °C)

*CONCLUSION*

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



