

# ANALYSIS Frankincense, Royal Hojari Essential oil

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**Phyto**Chemia



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CERTIFICATE OF ANALYSIS – GC PROFILING

SAMPLE IDENTIFICATION livinglibations  
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**Internal code :** 18125-FSE14-1-CC

**Customer identification :** Frankincense, White - Omani - EG210818

**Type :** Essential oil

**Source :** *Boswellia sacra*

**Customer :** Flowers Shining Everywhere Inc.

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ANALYSIS

**Method:** PC-PA-014-17J19 - Analysis of the composition of an essential oil, or other volatile liquid, by FAST GC-FID (in French); identifications validated by GC-MS.

**Analyst :** Lindsay Girard, B. Sc.

**Analysis date :** September 27, 2018

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Checked and approved by :

  
Alexis St-Gelais, M. Sc., chimiste 2013-174

Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.

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Essential oil, *Boswellia sacra*  
Internal code: 1BI25-FSE14-1-CC

Frankincense, White - Omani - EG210818

Report prepared for  
Flowers Shining Everywhere Inc.

PHYSICO-CHEMICAL DATA

**Physical aspect:** Faintly yellow liquid  
**Refractive index:**  $1.4675 \pm 0.0003$  (20 °C)

#### CONCLUSION

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

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# ANALYSIS SUMMARY

Identification	DB-5 (%)	DB-WAX (%)	Classe
Toluene	0.05	78.34*	Simple phenolic
Unknown	0.06	0.03	Alkene
Unknown	0.02	0.02	Unknown
Hashishene	0.33	[78.34]*	Monoterpene
Tricyclene	0.07	0.07	Monoterpene
$\alpha$ -Thujene	0.29	0.32	Monoterpene
$\alpha$ -Pinene	77.75	[78.34]*	Monoterpene
$\alpha$ -Fenchene	1.78*	0.01	Monoterpene
Camphene	1.78*	1.74	Monoterpene
Thuja-2,4(10)-diene	0.52	2.85*	Monoterpene
meta-Cymene	0.03	0.63*	Monoterpene
Sabinene	3.97	[2.85]*	Monoterpene
$\beta$ -Pinene	[3.97]	1.54	Monoterpene
trans-Dehydroxylinalool oxide	0.13	0.11	Monoterpenic ether
Myrcene	0.61	[0.63]*	Monoterpene
2-Carene	0.03		Monoterpene
$\alpha$ -Phellandrene	0.36*	0.22	Monoterpene
Pseudolimonene	[0.36]*	0.03	Monoterpene
$\Delta^3$ -Carene	0.48	0.37	Monoterpene
ortho-Methylanisole	0.02	0.01	Simple phenolic
$\alpha$ -Terpinene	0.09	0.10	Monoterpene
ortho-Cymene	0.02	0.57*	Simple phenolic
para-Cymene	0.56	[0.57]*	Monoterpene
1,8-Cineole	2.96*	0.52*	Monoterpenic ether
$\beta$ -Phellandrene	[2.96]*	[0.52]*	Monoterpene
Limonene	[2.96]*	2.49	Monoterpene
Cymene analog	0.03	0.03	Monoterpene
(Z)- $\beta$ -Ocimene	0.26	0.26	Monoterpene
(E)- $\beta$ -Ocimene	0.17	0.18	Monoterpene
$\gamma$ -Terpinene	0.15	0.17	Monoterpene
cis-Sabinene hydrate	0.01	0.02	Monoterpenic alcohol
Unknown	0.02	0.03	Oxygenated monoterpene
meta-Cymenene	0.05	0.08	Monoterpene
Fenchone	0.01	0.01	Aliphatic alcohol
para-Cymenene	0.12*	0.05	Monoterpene
Terpinolene	[0.12]*	0.07	Monoterpene
Linalool	0.11*	0.06	Monoterpenic alcohol
$\alpha$ -Thujone	[0.11]*	0.07	Monoterpenic ketone
trans-para-Mentha-2,8-dien-1-ol	0.02*	0.01	Monoterpenic alcohol
cis-para-Mentha-2-en-1-ol	[0.02]*	0.01	Monoterpenic alcohol
$\alpha$ -Campholenal	0.41	0.39	Monoterpenic aldehyde
cis-Limonene oxide	0.01	0.01	Monoterpenic ether
trans-Pinocarveol	0.59	0.60	Monoterpenic alcohol
cis-Verbenol	0.17	0.16	Monoterpenic alcohol
trans-Verbenol	0.57	0.57	Monoterpenic alcohol
meta-Mentha-4,6-dien-8-ol	0.26	0.29	Monoterpenic alcohol
Unknown	0.02		Oxygenated monoterpene
Pinocamphone	0.06	0.05	Monoterpenic ketone

Unknown	0.05	0.06*	Oxygenated monoterpene
Pinocarvone	0.07	0.04	Monoterpenic ketone
Borneol	0.02	0.01	Monoterpenic alcohol
$\alpha$ -Phellandren-8-ol	0.65	0.65	Monoterpenic alcohol
Umbellulone	0.25*	0.01	Monoterpenic ketone
Terpinen-4-ol	[0.25]*	[0.95]	Monoterpenic alcohol
cis-Sabinol	[0.25]*	0.15	Monoterpenic alcohol
para-Cymen-8-ol	0.07	0.07	Monoterpenic alcohol
$\alpha$ -Terpineol	0.17	0.15	Monoterpenic alcohol
Myrtenal	0.17	0.19*	Monoterpenic aldehyde
Myrtenol	0.02	0.02	Monoterpenic alcohol
Verbenone	0.39	0.42	Monoterpenic ketone
$\alpha$ -Phellandrene epoxide	[0.39]*	0.02	Monoterpenic ether
trans-Carveol	0.10	0.12*	Monoterpenic alcohol
Carvone	0.03	0.33*	Monoterpenic ketone
3,5-Dimethoxytoluene	0.02	[0.12]*	Simple phenolic
Bornyl acetate	0.27	0.32	Monoterpenic ester
Carvacrol	0.03	0.04	Monoterpenic alcohol
$\alpha$ -Terpinyl acetate	0.10	0.10	Monoterpenic ester
$\alpha$ -Copaene	0.05	0.06	Sesquiterpene
$\beta$ -Bourbonene	0.14	0.15	Sesquiterpene
1,5-diepi- $\beta$ -Bourbonene	0.02	[0.06]*	Sesquiterpene
$\beta$ -Cubebene	0.01	0.01	Sesquiterpene
$\beta$ -Elemene	0.42	0.95*	Sesquiterpene
$\alpha$ -Gurjunene	0.01	0.01	Sesquiterpene
$\beta$ -Caryophyllene	0.32	[0.95]*	Sesquiterpene
6,9-Guaiadiene	0.01	[0.19]*	Sesquiterpene
$\alpha$ -Humulene	0.09	0.09	Sesquiterpene
Germacrene D	0.03	0.03	Sesquiterpene
$\beta$ -Selinene	0.29	[0.33]*	Sesquiterpene
Bicyclogermacrene	0.16*	0.14*	Sesquiterpene
$\alpha$ -Selinene	[0.16]*	[0.33]*	Sesquiterpene
$\alpha$ -Murolene	0.08	[0.14]*	Sesquiterpene
Cubebol	0.07*	0.02	Sesquiterpenic alcohol
$\gamma$ -Cadinene	[0.07]*	0.06	Sesquiterpene
$\delta$ -Cadinene	0.13	0.15	Sesquiterpene
Germacrene B	0.03	0.01	Sesquiterpene
Caryophyllene oxide	0.05	0.05	Sesquiterpenic ether
Copabornol	0.03	0.04	Sesquiterpenic alcohol
10-epi-Cubenol	0.03		Sesquiterpenic alcohol
$\alpha$ -Murolol	0.02	0.01	Sesquiterpenic alcohol
$\alpha$ -Phellandrene dimer II	0.02	0.01	Diterpene
<b>Total identified</b>	<b>97.42%</b>	<b>97.51%</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

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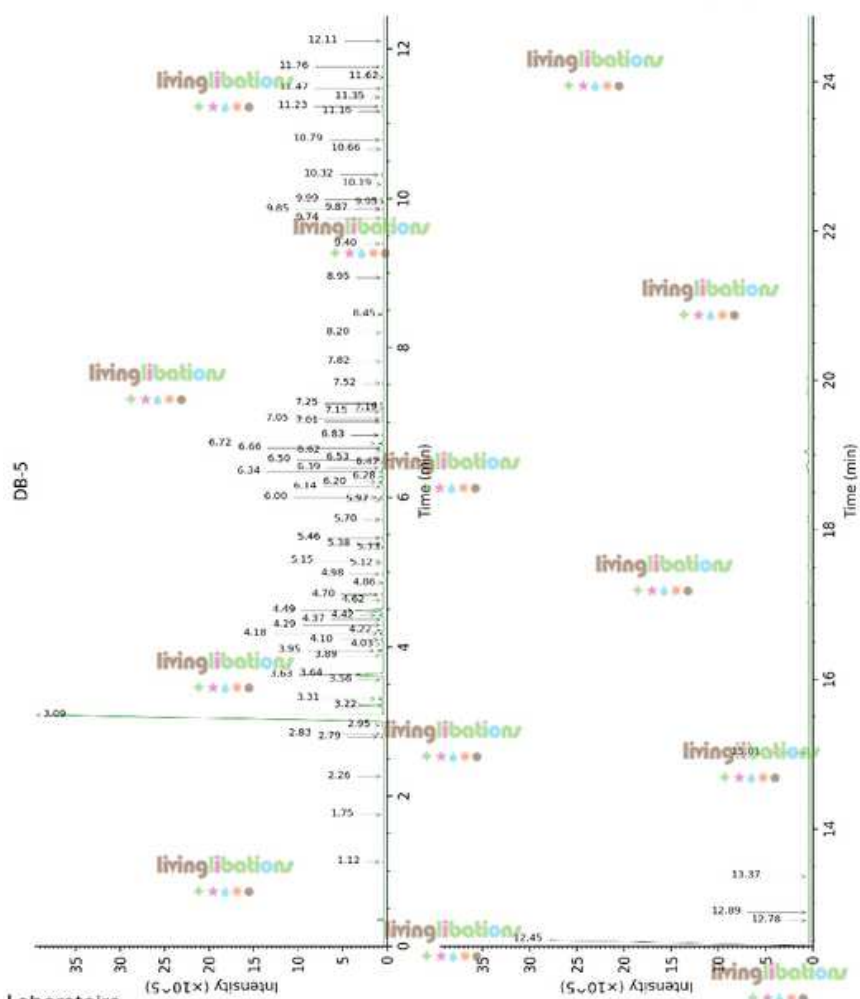
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Essential oil, *Boswellia sacra*  
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Frankincense, White - Omani - EG210818

Report prepared for  
Flowers Shining Everywhere Inc.

meta-Cymenene	5.33	1076	0.05	6.23	1379	0.08
Fenchone	5.38	1079	0.01	5.78	1346	0.01
para-Cymenene	5.46*	1084	0.12	6.35	1387	0.05
Terpinolene	5.46	1084	[0.12]	4.35	1243	0.07
Linalool	5.70*	1099	0.11	8.06	1514	0.06
$\alpha$ -Thujone	5.70*	1099	[0.11]	6.14	1372	0.07
trans-para-Mentha-2,8-dien-1-ol	5.97*	1116	0.02	8.99	1587	0.01
cis-para-Mentha-2-en-1-ol	5.97*	1116	[0.02]	8.16	1522	0.01
$\alpha$ -Campholenal	6.00	1118	0.41	7.02	1437	0.39
cis-Limonene oxide	6.14	1127	0.01	6.47	1396	0.01
trans-Pinocarveol	6.20	1131	0.59	9.15	1600	0.60
cis-Verbenol	6.28	1136	0.17	9.23	1606	0.16
trans-Verbenol	6.34	1140	0.57	9.50	1628	0.57
meta-Mentha-4,6-dien-8-ol	6.39	1143	0.26	9.31	1613	0.29
Unknown [m/z 109, 81 (39), 41 (38), 95 (24)... 152 (1)]	6.47	1148	0.02			
Pinocamphone	6.50	1150	0.06	7.29	1457	0.05
Unknown [m/z 97, 81 (96), 109 (80), 43 (53), 53 (40), 41 (36), 56 (29), 95 (25)... 152 (1)]	6.53	1152	0.05	7.49*	1472	0.06
Pinocarvone	6.62	1158	0.07	7.91	1503	0.04
Borneol	6.66	1160	0.02	9.79	1652	0.01
$\alpha$ -Phellandren-8-ol	6.72	1164	0.65	10.11	1678	0.65
Umbellulone	6.83*	1171	0.25	8.95	1584	0.01
Terpinen-4-ol	6.83*	1171	[0.25]	8.57*	1554	[0.95]
cis-Sabinol	6.83	1171	[0.25]	10.83	1738	0.15
para-Cymen-8-ol	7.01	1183	0.07	11.48	1794	0.07
$\alpha$ -Terpineol	7.05	1185	0.17	9.77	1650	0.15
Myrtenal	7.15	1191	0.17	8.67*	1562	0.19
Myrtenol	7.19	1194	0.02	10.91	1745	0.02
Verbenone	7.25*	1198	0.39	9.58	1634	0.42
$\alpha$ -Phellandrene epoxide	7.25*	1198	[0.39]	10.99	1752	0.02
trans-Carveol	7.52	1216	0.10	11.36*	1783	0.12
Carvone	7.82	1236	0.03	9.98*	1667	0.33
3,5-Dimethoxytoluene	8.20	1261	0.02	11.36*	1783	[0.12]
Bornyl acetate	8.44	1278	0.27	8.28	1532	0.32
Carvacrol	8.94	1312	0.03	15.40	2163	0.04
$\alpha$ -Terpinyl acetate	9.40	1343	0.10	9.74	1648	0.10
$\alpha$ -Copaene	9.74	1367	0.05	7.26	1455	0.06
$\beta$ -Bourbonene	9.85	1375	0.14	7.62	1481	0.15
1,5-diepi- $\beta$ -	9.87	1377	0.02	7.49*	1472	[0.06]

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Unknown [m/z 109, 81 (39), 41 (38), 95 (24)... 152 (1)]	6.47	1148	0.02			
Pinocamphone	6.50	1150	0.06	7.29	1457	0.05
Unknown [m/z 97, 81 (96), 109 (80), 43 (53), 53 (40), 41 (36), 56 (29), 95 (25)... 152 (1)]	6.53	1152	0.05	7.49*	1472	0.06
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Produkt	Produktionskosten (in €)			Vertriebskosten (in €)		
	Material	Fertigung	Gesamt	Vertrieb	Gesamt	Gesamt
Produkt A	100	200	300	50	350	650
Produkt B	150	250	400	75	475	875
Produkt C	200	300	500	100	600	1100
Produkt D	250	350	600	125	725	1325
Produkt E	300	400	700	150	850	1550
Produkt F	350	450	800	175	975	1775
Produkt G	400	500	900	200	1100	2000
Produkt H	450	550	1000	225	1225	2225
Produkt I	500	600	1100	250	1350	2450
Produkt J	550	650	1200	275	1475	2675
Produkt K	600	700	1300	300	1600	2900
Produkt L	650	750	1400	325	1725	3125
Produkt M	700	800	1500	350	1850	3350
Produkt N	750	850	1600	375	1975	3575
Produkt O	800	900	1700	400	2100	3800
Produkt P	850	950	1800	425	2225	4025
Produkt Q	900	1000	1900	450	2350	4250
Produkt R	950	1050	2000	475	2475	4475
Produkt S	1000	1100	2100	500	2600	4700
Produkt T	1050	1150	2200	525	2725	4925
Produkt U	1100	1200	2300	550	2850	5150
Produkt V	1150	1250	2400	575	2975	5375
Produkt W	1200	1300	2500	600	3100	5600
Produkt X	1250	1350	2600	625	3225	5825
Produkt Y	1300	1400	2700	650	3350	6050
Produkt Z	1350	1450	2800	675	3475	6275

Produktionskosten

Produktionskosten (in €)

Produkt

