



**PLANT THERAPY**  
100% PURE ESSENTIAL OILS

## GC/MS BATCH NUMBER: SW0100

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**ESSENTIAL OIL:** SANDALWOOD ORGANIC  
**BOTANICAL NAME:** SANTALUM SPICATUM  
**ORIGIN:** AUSTRALIA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF SANDALWOOD ORGANIC OIL	%
(2E,6E)-FARNESOL	24.7
(Z)- $\alpha$ -SANTALOL	17.0
(Z)-NUCIFEROL	8.7
(Z)- $\beta$ -CURCUMEN-12-ol	8.6
epi- $\alpha$ -BISABOLOL	5.5
(Z)- $\alpha$ -trans-BERGAMOTOL	3.2
(Z)-LANCEOL	3.0
(E)- $\beta$ -SANTALOL	2.7
$\beta$ -BISABOLOL	2.3
(E)-NEROLIDOL	2.1
(Z)- $\gamma$ -CURCUMEN-12-ol	1.5

Comments from Robert Tisserand: A beautiful sweet-green-woody odor profile. All 7 key constituents meet the ISO standard.

**Date :** April 21, 2016

*SAMPLE IDENTIFICATION*

**Internal code :** 16D20-PTH12-1-SM

**Customer identification :** Organic Sandalwood - Australia - SW0100512

**Type :** Essential oil

**Source :** *Santalum spicatum*

**Customer :** Plant Therapy

*ANALYSIS*

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

**Analyst :** Alexis St-Gelais, M. Sc., chimiste

**Analysis date :** 2016-04-21

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.	
<i>Santalum</i> biomarker	12.51	1280	0.31				Terpenic acid
Sesquithujene	19.49*	1396	0.22	0.08	1511	7.91	Sesquiterpene
$\alpha$ -Cedrene	19.49*	1396	[0.22]	0.12	1494	7.57	Sesquiterpene
$\alpha$ -Santalene	20.28	1407	0.50	0.55	1516	8.05	Sesquiterpene
<i>trans</i> - $\alpha$ -Bergamotene	21.44	1421	0.14	0.15	1530	8.45	Sesquiterpene
( <i>Z</i> )- <i>epi</i> - $\beta$ -Santalene	22.42	1433	0.28	0.29	1566	9.53	Sesquiterpene
$\alpha$ -Acoradiene	23.42*	1445	0.55	0.12	1590	10.26	Sesquiterpene
( <i>Z</i> )- $\beta$ -Santalene	23.42*	1445	[0.55]	0.42	1581	9.99	Sesquiterpene
$\beta$ -Acoradiene	24.22	1454	0.07	0.04	1599	10.54	Sesquiterpene
$\gamma$ -Curcumene	25.19	1466	0.22	0.21	1626	11.49	Sesquiterpene
<i>ar</i> -Curcumene	25.89	1474	0.33	0.40	1696	14.66	Sesquiterpene
$\beta$ -Curcumene	28.09	1501	0.49	0.55	1671	13.52	Sesquiterpene
( <i>E</i> )-Nerolidol	33.04	1569	2.05	2.33	1994	33.19	Sesquiterp. alcohol
Dendrolasin	33.35	1573	0.90	0.94	1859	24.41	Sesquiterp. ether
Guaiol	34.51	1589	0.24	0.36	2006	33.89	Sesquiterp. alcohol
$\alpha$ -Acorenol	36.04	1615	0.18				Sesquiterp. alcohol
$\beta$ -Acorenol	36.18	1618	0.10				Sesquiterp. alcohol
Unknown santalol analog ( <i>m/z</i> = 95, 123 (77), 94 (77), 151 (61), 121 (56), 93 (51)... 220 (5))	37.91	1660	0.81	0.46	2015	34.36	Sesquiterp. alcohol
$\beta$ -Bisabolol	38.18	1666	2.29	2.04	2069	36.57	Sesquiterp. alcohol
( <i>Z</i> )- $\alpha$ -Santalol	38.46	1673	16.99	17.93	2259	42.09	Sesquiterp. alcohol
( <i>E</i> )- $\alpha$ -Santalol	38.86	1683	0.66	11.00	2297	42.97*	Sesquiterp. alcohol
<i>epi</i> - $\alpha$ -Bisabolol	39.04*	1687	8.18	5.54	2139	38.96*	Sesquiterp. alcohol
( <i>Z</i> )- $\alpha$ - <i>trans</i> -Bergamotol	39.04*	1687	[8.18]	3.17	2272	42.38	Sesquiterp. alcohol
$\alpha$ -Bisabolol	39.17	1690	0.49	[5.54]	2139	38.96*	Sesquiterp. alcohol
( <i>Z</i> )- <i>epi</i> - $\beta$ -Santalol	39.41	1696	1.40	1.34	2320	43.50	Sesquiterp. alcohol
( <i>Z</i> )- $\beta$ -Santalol	39.95	1711	5.94	5.99	2337	43.89	Sesquiterp. alcohol
(2 <i>E</i> ,6 <i>E</i> )-Farnesol	40.38*	1725	24.69	[11.00]	2297	42.97*	Sesquiterp. alcohol
( <i>Z</i> )-Nuciferol	40.38*	1725	[24.69]	8.74	2436	45.98	Sesquiterp. alcohol
( <i>Z</i> )- $\gamma$ -Curcumen-12-ol	40.74	1736	1.52	2.14	2368	44.55	Sesquiterp. alcohol
( <i>E</i> )- $\beta$ -Santalol	40.95	1743	2.73	5.80	2357	44.31	Sesquiterp. alcohol
( <i>Z</i> )- $\beta$ -Curcumen-12-ol	41.41	1757	8.56	8.96	2407	45.38	Sesquiterp. alcohol
( <i>Z</i> )-Lanceol	41.58	1762	2.97	2.58	2411	45.47	Sesquiterp. alcohol
<b>Total identified</b>			<b>83%</b>	<b>81.79%</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 :**  $1.5043 \pm 0.0003$  (20 °C)

*CONCLUSION*

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



