



**PLANT THERAPY**  
100% PURE ESSENTIAL OILS

## GC/MS BATCH NUMBER: SW0101

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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	10.9
(Z)- $\alpha$ -SANTALOL	15.9
(Z)- $\beta$ -CURCUMEN-12-ol	9.8
(Z)- $\gamma$ -CURCUMEN-12-ol	7.0
(Z)- $\beta$ -SANTALOL	5.6
(Z)-NUCIFEROL	5.6
(Z)- $\alpha$ -trans-BERGAMOTOL	3.5
$\beta$ -BISABOLOL	3.1
(Z)-LANCEOL	2.7
(E)- $\beta$ -SANTALOL	2.6
(E)-NEROLIDOL	2.2
(Z)-epi- $\beta$ -SANTALOL	1.5
$\alpha$ -BISABOLOL	1.1

Comments from Robert Tisserand: Excellent green-woody odor quality. All 7 key constituents meet the ISO standard.

**Date :** March 24, 2017

*SAMPLE IDENTIFICATION*

**Internal code :** 17C01-PTH18-1-DM

**Customer identification :** Organic Sandalwood - Australia - SW0101612R

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

**Analysis date :** 2017-03-21

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.	
Santene	2.61	876	0.13	0.12	892	0.95	Normonoterpene
Teresantalic acid	13.20	1289	0.42	0.51	2145	41.02	Monoterp. acid
Tricycloekasantalal	15.70	1331	0.08				Monoterp. aldehyde
$\alpha$ -Cedrene	19.95	1395	0.22	0.15	1491	8.86	Sesquiterpene
$\alpha$ -Santalene	20.73	1406	0.43	0.44	1512	9.44	Sesquiterpene
<i>trans</i> - $\alpha$ -Bergamotene	21.91	1420	0.17	0.14	1526	9.94	Sesquiterpene
( <i>Z</i> )- <i>epi</i> - $\beta$ -Santalene	22.91	1432	0.24	0.23	1564	11.33	Sesquiterpene
( <i>Z</i> )- $\beta$ -Santalene	23.91*	1444	0.53	0.37	1579	11.90	Sesquiterpene
$\alpha$ -Acoradiene	23.91*	1444	[0.53]	0.12	1589	12.26	Sesquiterpene
$\beta$ -Acoradiene	24.75	1454	0.07	0.05	1607	12.93	Sesquiterpene
$\gamma$ -Curcumene	25.71	1465	0.27	0.27	1623	13.76	Sesquiterpene
$\alpha$ -Curcumene	26.19	1471	0.19	0.20	1697	17.64	Sesquiterpene
$\beta$ -Curcumene	28.65	1501	0.59	0.58	1671	16.21	Sesquiterpene
$\beta$ -Sesquiphellandrene	29.81	1517	0.19	0.22	1694	17.47	Sesquiterpene
( <i>E</i> )-Nerolidol	33.53	1569	2.19	2.25	1993	36.04	Sesquiterp. alcohol
Dendrolasin	33.77	1572	0.83	0.85	1864	28.75	Sesquiterp. ether
Guaiol	34.93	1588	0.13	0.18	2007	36.64	Sesquiterp. alcohol
$\alpha$ -Acorenol	36.16	1610	0.26	0.21	2037	37.79	Sesquiterp. alcohol
$\beta$ -Acorenol	36.43	1616	0.20	0.14	2055	38.32	Sesquiterp. alcohol
( <i>Z</i> )- $\alpha$ -Santalal?	37.71	1648	0.67				Sesquiterp. aldehyde
$\beta$ -Bisabolol	38.53*	1668	3.06	2.20	2072	38.86	Sesquiterp. alcohol
Unknown santalol analog ( <i>m/z</i> = 95, 123 (77), 94 (77), 151 (61), 121 (56), 93 (51)... 220 (5))	38.53*	1668	[3.06]	0.70	2022	37.31	Sesquiterp. alcohol
( <i>Z</i> )- $\alpha$ -Santalol	38.82	1675	15.92	17.57	2264	43.98	Sesquiterp. alcohol
$\alpha$ -Bisabolol	39.15	1683	1.10	4.67	2142	40.96*	Sesquiterp. alcohol
( <i>Z</i> )- $\alpha$ - <i>trans</i> -Bergamotol	39.38*	1688	7.95	3.54	2276	44.25	Sesquiterp. alcohol
<i>epi</i> - $\alpha$ -Bisabolol	39.38*	1688	[7.95]	[4.67]	2142	40.96*	Sesquiterp. alcohol
( <i>E</i> )- $\alpha$ -Santalol	39.38*	1688	[7.95]	0.22	2307	44.95	Sesquiterp. alcohol
( <i>Z</i> )- <i>epi</i> - $\beta$ -Santalol	39.75	1697	1.49	1.21	2324	45.36	Sesquiterp. alcohol
( <i>Z</i> )- $\beta$ -Santalol	40.28	1713	5.61	5.58	2342	45.72	Sesquiterp. alcohol
(2 <i>E</i> ,6 <i>E</i> )-Farnesol	40.70*	1727	20.17	10.94	2298	44.76	Sesquiterp. alcohol
( <i>Z</i> )- $\gamma$ -Curcumen-12-ol	40.70*	1727	[20.17]	6.96	2361	46.15	Sesquiterp. alcohol
( <i>Z</i> )-Nuciferol	40.79	1730	5.62	8.23	2439	47.80	Sesquiterp. alcohol
( <i>E</i> )- $\beta$ -Santalol	41.28	1745	2.62	2.40	2374	46.43	Sesquiterp. alcohol
( <i>Z</i> )- $\beta$ -Curcumen-12-ol	41.74	1760	9.78	9.67	2410	47.19	Sesquiterp. alcohol
( <i>Z</i> )-Lanceol	41.89	1764	2.70	2.36	2415	47.27	Sesquiterp. alcohol

(Z)- $\alpha$ -Santalyl acetate	42.50	1783	0.39	0.34	2115	40.19	Sesquiterp. ester
<b>Total identified</b>			<b>84.22%</b>	<b>82.92%</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 :**  $1.5038 \pm 0.0003$  (20 °C)

#### CONCLUSION

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

17C01-PTH18-1-DM\_BP5



