

Date : 2026-10-07

CERTIFICATE OF ANALYSIS - GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 26H07-PTH01

Customer Identification : Indian Sandalwood – India - SA2111

Type : Essential Oil

Source : *Santalum album*

Customer : Plant Therapy

Checked and approved by:

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

Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia. This report is digitally signed, it is only considered valid if the digital signature is intact. The results only describe the samples that were submitted to the assays. The compliance status of the sample is provided to facilitate the reading of the report. The client remains ultimately responsible for reviewing the results presented within this report and to establish compliance of the tested batch against relevant quality criteria.

This report is an update of the version first issued on 2026-08-10 to make a modification in the sample identification section.

GAS CHROMATOGRAPHIC ANALYSIS

Method : PC-MAT-014 - Analysis of the composition of an essential oil or other volatile liquide by FAST GC-FID

✖ISO

Results : See analysis summary (next page)

Analyst : Jean-Christophe Fortin, M. Sc.

Date : 2026-08-10

PHYSICOCHEMICAL DATA

Refractive index : 0.0 ± 0.0003 (20 °C)

Method : PC-MAT-016 - Measure of the refractive index of a liquid.

Analyst : Cindy Caron B. Sc.

Date : 2026-08-07

CONCLUSION

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

ANALYSIS SUMMARY - CONSOLIDATED CONTENTS

New readers of similar reports are encouraged to read table footnotes at least once.

Identification	%	Class
Santene	0.01	Normonoterpene
1-Furfurylpyrrole	[0.04]	Pyrrole
4-Methylacetophenone	0.01	Simple phenolic
Teresantalol?	[0.04]	Monoterpenic alcohol
Unknown	0.01	Terpene derivative
Teresantalic acid	0.03	Monoterpenic acid
Tricycloekasantalal	0.06	Terpenic aldehyde
(1S,5S,6R)-2,6-Dimethylbicyclo[3.1.1]hept-2-ene-6-propanal?	0.01	Terpenic aldehyde
Unknown	0.01	Unknown
7-epi-Sesquithujene	0.02	Sesquiterpene
γ -4-Dimethylbenzenebutyral	0.04	Simple phenolic
α -Cedrene	0.01	Sesquiterpene
β -Cedrene	0.01	Sesquiterpene
α -Santalene	0.84	Sesquiterpene
<i>trans</i> - α -Bergamotene	0.18	Sesquiterpene
Unknown	0.02	Sesquiterpene
epi- β -Santalene	0.82	Sesquiterpene
Geranylacetone	0.01	Monoterpenic ketone
β -Acoradiene	0.03	Sesquiterpene
α -Acoradiene	0.02	Sesquiterpene
β -Santalene	1.26	Sesquiterpene
Unknown	0.04	Unknown
γ -Curcumene	0.05	Sesquiterpene
Unknown	0.06	Sesquiterpene
α -Curcumene	0.22	Sesquiterpene
Unknown	0.01	Sesquiterpene
Unknown	0.03	Sesquiterpene
α -Alaskene	0.02	Sesquiterpene
β -Bisabolene	0.10	Sesquiterpene
β -Curcumene	0.18	Sesquiterpene
Unknown	0.05	Oxygenated sesquiterpene
β -Sesquiphellandrene	0.02	Sesquiterpene
8,14-Cedranoxide	0.03	Sesquiterpenic ether
Unknown	0.06	Sesquiterpene
Unknown	0.04	Sesquiterpene
(E)-Nerolidol	0.05	Sesquiterpenic alcohol
Unknown	0.01	Oxygenated sesquiterpene
Dendrolasin	0.03	Sesquiterpenic ether
Humulene epoxide I	0.02	Sesquiterpenic ether

1-[(1S,3aR,4S,7R,7aR)-Octahydro-3a,7a-dimethyl-4,7-methano-1H-inden-1-yl]ethanone	0.01	Norsesquiterpenic ketone
α -Cedrol	0.02	Sesquiterpenic alcohol
Helifolen-12-al A	0.01	Sesquiterpenic aldehyde
Guaïol	0.01	Sesquiterpenic alcohol
Helifolen-12-al B	0.02	Sesquiterpenic aldehyde
Unknown	0.05	Oxygenated sesquiterpene
α -Acorenol	0.03	Sesquiterpenic alcohol
β -Acorenol	0.02	Sesquiterpenic alcohol
10-epi- β -Acorenol?	0.01	Sesquiterpenic alcohol
β -Eudesmol	0.01	Sesquiterpenic alcohol
Unknown	0.44	Oxygenated sesquiterpene
α -Bisabolol oxide B, epimer 1	0.09	Sesquiterpenic alcohol
α -Bisabolol oxide B, epimer 2	0.18	Sesquiterpenic alcohol
Unknown	0.33	Oxygenated sesquiterpene
Unknown	0.32	Oxygenated sesquiterpene
Bulnesol	0.06	Sesquiterpenic alcohol
Unknown	0.32	Oxygenated sesquiterpene
β -Bisabolol	0.45	Sesquiterpenic alcohol
epi-Cyclosantalal	0.18	Sesquiterpenic aldehyde
(E)- α -Santalal	1.10	Sesquiterpenic aldehyde
(Z)- α -Santalol	46.96	Sesquiterpenic alcohol
α -Bisabolol	0.07	Sesquiterpenic alcohol
Unknown FRAG MCDXXXIII [m/z 95, 94 (90), 93 (58), 123 (53), 121 (49)...]	0.27	Unknown
(Z)- α -trans-Bergamotol	6.73	Sesquiterpenic alcohol
(E)- α -Santalol	0.72	Sesquiterpenic alcohol
Unknown	0.02	Oxygenated sesquiterpene
(E)- α -trans-Bergamotol	0.45	Sesquiterpenic alcohol
(Z)-epi- β -Santalol	2.36	Sesquiterpenic alcohol
(Z)- β -Santalol	23.49	Sesquiterpenic alcohol
Unknown	0.19	Oxygenated sesquiterpene
Unknown	0.33	Oxygenated sesquiterpene
(2E,6E)-Farnesol	0.98	Sesquiterpenic alcohol
(Z)- γ -Curcumen-12-ol	0.29	Sesquiterpenic alcohol
(Z)-Nuciferol	0.92	Sesquiterpenic alcohol
(E)- β -Santalol	1.44	Sesquiterpenic alcohol
(2E,6E)-Farnesal	0.26	Sesquiterpenic aldehyde
Unknown	0.14	Oxygenated sesquiterpene
Curcumen-12-ol analog	0.17	Sesquiterpenic alcohol
Santalol isomer II	[0.35]	Sesquiterpenic alcohol
Unknown SAAL XX [m/z 91, 93 (57), 119 (56), 79 (54), 105 (53)...]	[0.35]	Unknown
(Z)- β -Curcumen-12-ol	0.43	Sesquiterpenic alcohol
(Z)-Lanceol	1.77	Sesquiterpenic alcohol

(Z)- α -Santalyl acetate	0.02	Sesquiterpenic ester
Unknown	0.10	Oxygenated sesquiterpene
Unknown	0.05	Oxygenated sesquiterpene
Bisabola-2,7(Z),10(Z)-trien-13-ol?	0.15	Oxygenated sesquiterpene
Unknown	0.06	Oxygenated sesquiterpene
Unknown	0.04	Oxygenated sesquiterpene
Unknown	0.04	Oxygenated sesquiterpene
Unknown	0.02	Unknown
Unknown	0.02	Unknown
Unknown	0.04	Oxygenated sesquiterpene
Unknown	0.02	Oxygenated sesquiterpene
Unknown	0.01	Oxygenated sesquiterpene
Unknown	0.02	Oxygenated sesquiterpene
Palmitic acid	0.02	Aliphatic acid
Oleic acid	0.02	Aliphatic acid
Unknown	0.01	Unknown
Consolidated total	97.13	

tr: The compound has been detected below 0.005% of the total signal

Note: no correction factor was applied

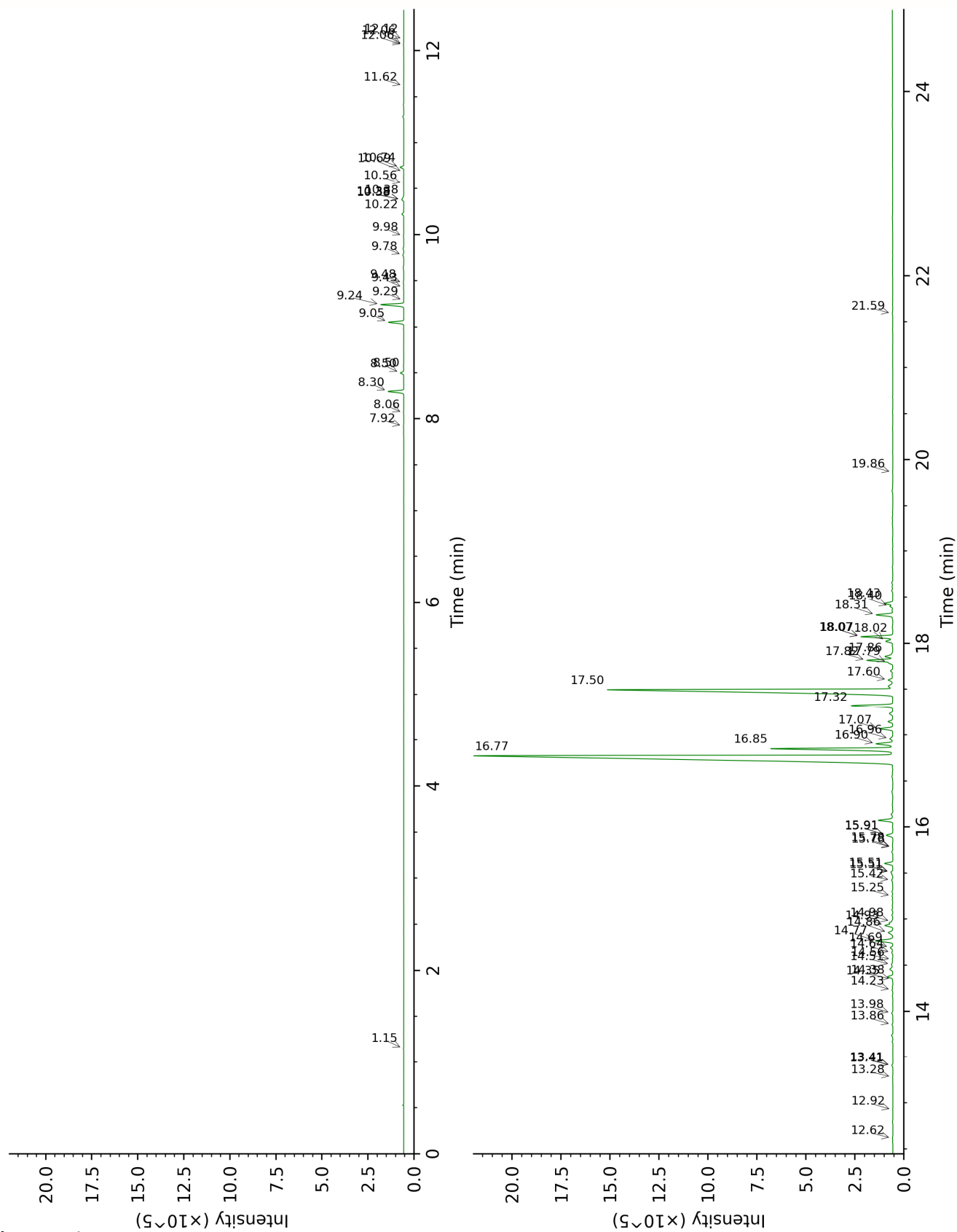
About "consolidated" data: The table above presents the breakdown of the sample volatile constituents after applying an algorithm to collapse data acquired from the multi-columns system of PhytoChemia into a single set of consolidated contents. In case of discrepancies between columns, the algorithm is set to prioritize data from the most standard DB-5 column, and smallest values so as to avoid overestimating individual content. This process is semi-automatic. Advanced users are invited to consult the "Full analysis data" table after the chromatograms in this report to access the full untreated data and perform their own calculations if needed.

Unknowns: Unknown compounds' mass spectral data is presented in the "Full analysis data" table. The occurrence of unknown compounds is to be expected in many samples, and does not denote particular problems unless noted otherwise in the conclusion.

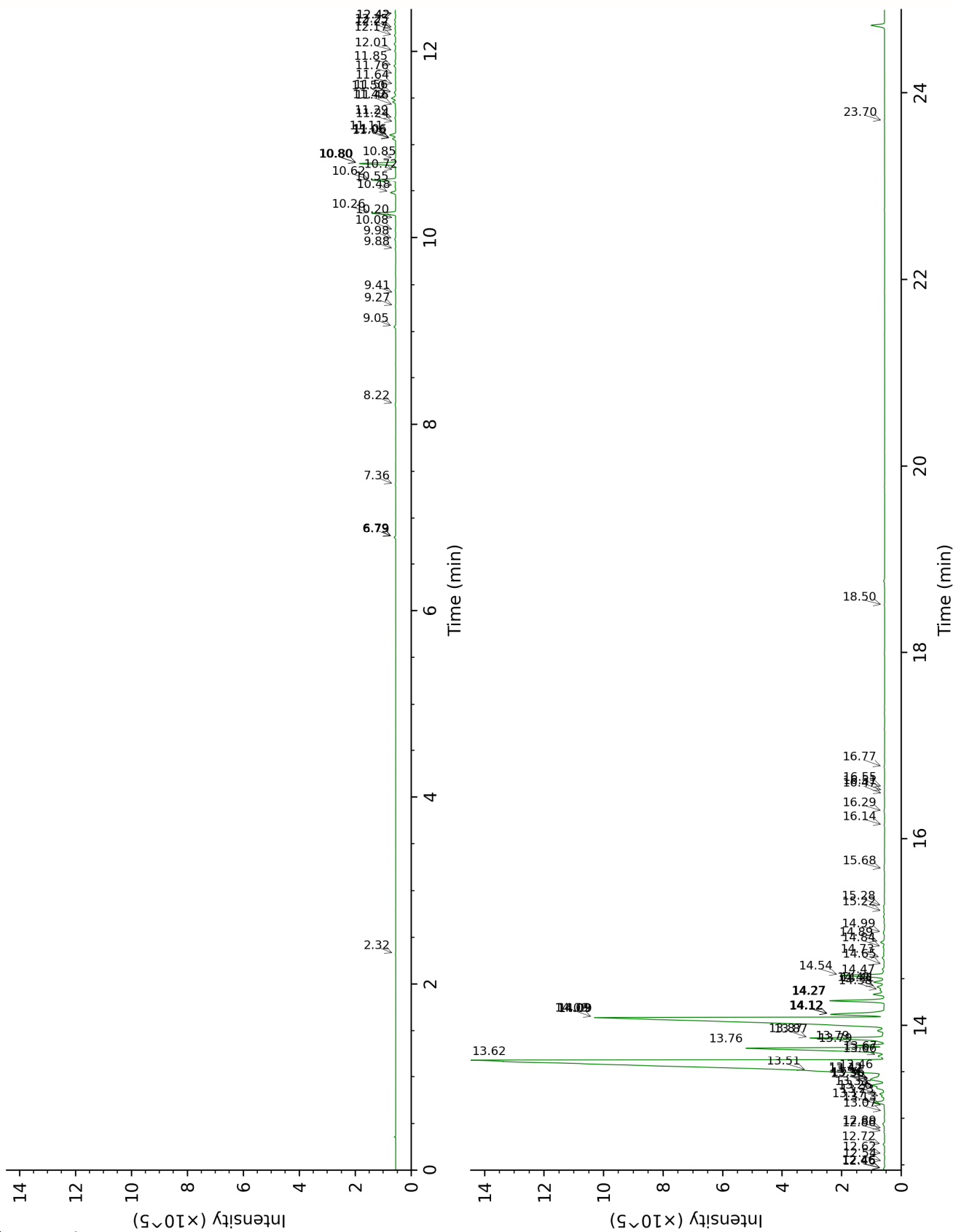
Bracketed value ([xx]): A bracketed percent value indicate that two or more compound percentage could not be solved due to coelution.

This page was intentionally left blank. The following pages present the complete data of the analysis.

DB-WAX



DB-5



FULL ANALYSIS DATA

Santene	Column DB-WAX			Column DB-5		
	1.15	948.4	0.01	2.32	883.8	0.01
1-Furfurylpyrrole				6.79*	1180.7	[0.05]
4-Methylacetophenone	10.56	1706.3	0.01	6.79*	1180.7	[0.05]
Teresantalol?				6.79*	1180.7	[0.05]
Unknown SASP II [m/z 93, 91 (89), 94 (85), 105 (60)... 176? (10)]	9.29	1604.0	0.01	7.36	1218.6	0.01
Teresantalic acid	15.78*	2186.3	[0.01]	8.22	1277.5	0.03
Tricycloekasantalal	10.38*	1691.4	[0.17]	9.05	1331.7	0.06
(1S,5S,6R)-2,6-Dimethylbicyclo[3.1.1]hept-2-ene-6-propanal?	10.38*	1691.4	[0.17]	9.27	1347.3	0.01
Unknown SAAL II [m/z 93, 160 (81), 91 (58), 94 (53), 134 (53)...]				9.41	1357.1	0.01
7-epi-Sesquithujene	7.92	1498.6	0.02	9.88	1390.8	0.02
γ-4-Dimethylbenzenebutyral				9.98	1398.2	0.04
α-Cedrene	8.06	1509.6	0.01	10.08	1405.1	0.01
β-Cedrene	8.50*	1542.8	[0.17]	10.20	1414.4	0.01
α-Santalene	8.30	1527.4	0.84	10.26	1418.9	0.84
trans-α-Bergamotene	8.50*	1542.8	[0.17]	10.48	1435.4	0.18
Unknown SASP IV [m/z 93, 91 (80), 79 (68), 123 (68), 121 (56)... 204 (3)]				10.55	1440.2	0.02
epi-β-Santalene	9.05	1585.5	0.81	10.62	1446.0	0.82
Geranylacetone				10.72	1453.7	0.01
β-Acoradiene	9.48	1619.2	0.03	10.80*	1459.4	[1.29]
α-Acoradiene	9.43	1615.0	0.02	10.80*	1459.4	[1.29]
β-Santalene	9.24	1600.5	1.26	10.80*	1459.4	[1.29]
Unknown SAAL III [m/z 135, 119 (34), 107 (25), 91 (20), 93 (19)...]				10.85	1463.0	0.04
γ-Curcumene	9.78	1643.2	0.05	11.06*	1479.3	[0.11]
Unknown SASP V [m/z 119, 91 (24), 105 (16), 121 (16), 93 (15), 117 (15), 41 (14), 132 (14)... 204 (4)]				11.06*	1479.3	[0.11]
ar-Curcumene	10.74	1721.5	0.19	11.11	1482.4	0.22
Unknown SASP VI [m/z 119, 105 (51), 91 (31), 132 (30), 121 (26), 145 (23), 134 (20)... 204 (2)]	12.12	1840.2	0.01	11.24	1492.5	0.01

Unknown SASP VII [m/z 119, 93 (52), 105 (38), 91 (33), 41 (31), 79 (25)... 204 (2)]	12.06*	1835.0	[0.02]	11.29	1496.0	0.03
α-Alaskene	9.98	1659.7	0.02	11.42	1506.1	0.02
β-Bisabolene	10.22	1678.8	0.10	11.46	1509.1	0.10
β-Curcumene	10.38*	1691.4	[0.17]	11.50	1512.3	0.18
Unknown CULO LIV [m/z 121, 93 (56), 91 (12), 94 (11), 122 (10)...220]	13.41*	1956.1	[0.06]	11.56	1517.0	0.05
β-Sesquiphellandrene	10.68	1717.1	0.01	11.64	1523.6	0.02
8,14-Cedranoxide	11.62	1796.1	0.01	11.76	1532.7	0.03
Unknown SAAL VIII [m/z 121, 93 (91), 79 (57), 91 (25), 43 (23), 77 (18)...202 (8)]	13.98	2009.8	0.08	11.84	1539.7	0.06
Unknown SAAL IX [m/z 121, 93 (79), 79 (51), 91 (21), 77 (16), 43 (15)...202 (5)]				12.01	1552.5	0.04
(E)-Nerolidol	13.86	1997.8	0.04	12.17	1565.4	0.05
Unknown SASP VIII [m/z 43, 125 (78), 107 (43), 132 (34), 67 (31)... 220 (3)]	12.06*	1835.0	[0.02]	12.22	1569.3	0.01
Dendrolasin	12.62	1883.4	0.03	12.25	1571.8	0.03
Humulene epoxide I	13.28	1944.5	0.02	12.42*	1585.1	[0.03]
1-[(1S,3aR,4S,7R,7aR)-Octahydro-3a,7a-dimethyl-4,7-methano-1H-inden-1-yl]ethanone				12.42*	1585.1	[0.03]
α-Cedrol	14.35	2045.0	0.02	12.46*	1588.5	[0.05]
Helifolen-12-al A	12.92	1911.6	0.01	12.46*	1588.5	[0.05]
Guaiol	14.23	2033.6	0.05	12.54	1594.6	0.01
Helifolen-12-al B	13.41*	1956.1	[0.06]	12.62	1600.8	0.02
Unknown SASP X [m/z 81, 41 (40), 69 (36), 138 (27), 43 (26), 110 (25)... 222 (1)]				12.72	1609.2	0.05
α-Acorenol	14.56	2065.5	0.03	12.86	1620.6	0.03
β-Acorenol	14.98	2105.7	0.05	12.89	1623.3	0.02
10-epi-β-Acorenol?				13.07	1638.5	0.01
β-Eudesmol	15.51*	2159.2	[0.11]	13.13	1643.5	0.01
Unknown SASP XI [m/z 91, 43 (89), 93 (84), 81 (81), 105 (79), 79 (70), 67 (68), 41 (68)...]				13.17	1646.6	0.44
α-Bisabolol oxide B, epimer 1	14.51	2060.2	0.12	13.23	1652.0	0.09

α-Bisabolol oxide B, epimer 2	14.64	2072.5	0.07	13.26	1654.2	0.18
Unknown SAAL IV [m/z 93, 121 (97), 91 (30), 92 (27), 79 (26), 94 (21), 105 (19), 122 (18)... 222 (9)]	15.91*	2199.9	[0.41]	13.33	1659.6	0.33
Unknown SAAL V [m/z 121, 93 (96), 95 (96), 41 (65), 82 (63), 69 (62), 67 (59)... 222 (8)]	14.38	2047.4	0.32	13.36*	1662.0	[0.58]
Bulnesol	15.42	2150.6	0.06	13.36*	1662.0	[0.58]
Unknown SAAL VI [m/z 67, 119 (70), 82 (42), 91 (37), 95 (36), 121 (34), 93 (32)...]	14.86	2093.7	0.32	13.42*	1667.1	[0.97]
β-Bisabolol	14.93	2101.4	0.45	13.42*	1667.1	[0.97]
epi-Cyclosantalal	14.69	2077.7	0.14	13.46	1670.9	0.18
(E)-α-Santalal	14.77	2084.9	1.10	13.51†	1675.1	2.26
(Z)-α-Santalol	16.77	2289.4	46.96	13.62†	1684.3	45.44
α-Bisabolol	15.51*	2159.2	[0.11]	13.66	1687.1	0.07
Unknown FRAG MCDXXXIII [m/z 95, 94 (90), 93 (58), 123 (53), 121 (49)...]				13.67	1688.6	0.27
(Z)-α-trans-Bergamotol	16.85	2297.8	6.63	13.76	1695.6	6.73
(E)-α-Santalol	17.07	2321.1	0.72	13.79*	1698.1	[0.74]
Unknown SASP XII [m/z 43, 93 (68), 41 (61), 69 (58), 125 (54), 107 (50)...]				13.79*	1698.1	[0.74]
(E)-α-trans-Bergamotol	17.86	2407.2	0.45	13.87*	1704.7	[2.97]
(Z)-epi-β-Santalol	17.32	2348.7	2.36	13.87*	1704.7	[2.97]
(Z)-β-Santalol	17.50	2367.5	23.49	14.09*	1723.6	[24.01]
Unknown ZIOF XXXIX [m/z 119, 91 (31), 105 (29), 41 (25), 133 (23), 158 (21)...]	16.96	2309.3	0.19	14.09*	1723.6	[24.01]
Unknown SASP XIV [m/z 43, 189 (94), 81 (65), 93 (62), 95 (53), 119 (49)... 207 (43)...]	15.78*	2186.3	[0.01]	14.09*	1723.6	[24.01]
(2E,6E)-Farnesol	16.90	2303.5	0.98	14.12*	1726.7	[2.44]
(Z)-γ-Curcumen-12-ol	17.60	2378.9	0.29	14.12*	1726.7	[2.44]
(Z)-Nuciferol	18.31	2457.9	0.92	14.12*	1726.7	[2.44]
(E)-β-Santalol	17.82	2402.8	1.44	14.27*	1739.5	[1.85]
(2E,6E)-Farnesal	15.91*	2199.9	[0.41]	14.27*	1739.5	[1.85]
Unknown SAAL X [m/z 91, 93 (65), 79 (57), 105 (49), 119 (47), 121 (44)...218 (1)]	18.40	2468.4	0.14	14.27*	1739.5	[1.85]
Curcumen-12-ol analog	17.79	2400.1	0.18	14.38	1749.3	0.17

Santalol isomer II				14.42*	1752.3	[0.35]
Unknown SAAL XX [m/z 91, 93 (57), 119 (56), 79 (54), 105 (53)...]				14.42*	1752.3	[0.35]
(Z)- β -Curcumen-12-ol	18.02	2425.7	0.43	14.47	1756.8	0.43
(Z)-Lanceol	18.07*	2431.4	[1.70]	14.54	1763.0	1.77
(Z)- α -Santalyl acetate	15.25	2133.3	0.04	14.65	1772.7	0.02
Unknown SASP XVI [m/z 93, 119 (89), 91 (63), 79 (63), 132 (53), 41 (52)... 236 (3)]	18.07*	2431.4	[1.70]	14.73	1779.5	0.10
Unknown SASP XVII [m/z 107, 93 (96), 79 (90), 55 (78), 41 (76)... 236 (6)]				14.84	1789.5	0.05
Bisabola-2,7(Z),10(Z)-trien-13-ol?	18.44	2471.9	0.49	14.89	1793.9	0.15
Unknown SASP XIX [m/z 119, 105 (78), 145 (60), 91 (50), 121 (44), 93 (38)... 216 (7)]	19.86	2639.7	0.02	15.00	1802.9	0.06
Unknown SASP XX [m/z 119, 145 (62), 105 (52), 91 (52), 121 (38)...]				15.22	1823.2	0.04
Unknown SASP XXII [m/z 119, 43 (61), 132 (49), 105 (35), 141 (32)...]				15.28	1828.5	0.04
Unknown UNKN CLXII [m/z 93, 91 (51), 121 (45), 94 (39), 79 (36), 107 (34)...]				15.68	1864.7	0.02
Unknown SAAU IV [m/z 43, 94 (97), 109 (86), 67 (47), 95 (44), 122 (42)...]				16.14	1907.5	0.02
Unknown SAAU III [m/z 93, 43 (99), 109 (95), 68 (80), 95 (77), 81 (69), 110 (68)...220 (7)]	21.59	2856.4	0.03	16.29	1921.7	0.04
Unknown CIAU XI [m/z 218, 176 (91), 146 (37), 161 (30), 133 (27), 147 (20)...]				16.47	1939.0	0.02
Unknown SAAU VI [m/z 43, 107 (24), 93 (23), 125 (23), 95 (23), 119 (23)...220 (1)]				16.51	1942.5	0.01
Unknown SAAU VIII [m/z 93, 94 (86), 91 (48), 121 (42), 79 (42), 107 (37)...218 (2)]				16.55	1946.3	0.02
Palmitic acid				16.76	1966.8	0.02

Oleic acid		18.50	2139.2	0.02
Unknown MISC LXV [m/z 93, 121 (96), 94 (81), 91 (46), 203 (41), 122 (40)...]		23.70	2733.7	0.01
Total reported	94.75%		97.57%	

*: Two or more compounds are coeluting on this column

[xx]: Duplicate percentage due to coelutions, only the first one is taken into account in the consolidated total

†: Peaks apexes were resolved, but peaks overlapped and were summed for analysis

tr: The compound has been detected below 0.005% of total signal.

Note: no correction factor was applied

R.T.: Retention time (minutes)

R.I.: Retention index