

Date : 2025-09-09

CERTIFICATE OF ANALYSIS - GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 25H19-PTH03

Customer Identification : Ravintsara - Madagascar - RG0109R

Type : Essential Oil

Source : *Cinnamomum camphora*

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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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

This report is an update of the version first issued on August 26, 2025 to correct a mistake 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 : 2025-08-26

PHYSICOCHEMICAL DATA

Refractive index : 1.4643 ± 0.0003 (20 °C)

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

Analyst : Kassandra Baker

Date : 2025-08-19

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
Isoamyl alcohol	0.01	Aliphatic alcohol
(3Z)-Hexenol	0.01	Aliphatic alcohol
Hashishene	tr	Monoterpene
Tricyclene	0.02	Monoterpene
α -Thujene	0.72	Monoterpene
α -Pinene	7.22	Monoterpene
Camphene	0.14	Monoterpene
α -Fenchene	0.01	Monoterpene
Sabinene	12.73	Monoterpene
β -Pinene	3.39	Monoterpene
6-Methyl-5-hepten-2-one	0.02	Aliphatic ketone
Myrcene	0.95	Monoterpene
α -Phellandrene	0.17	Monoterpene
Pseudolimonene	0.03	Monoterpene
α -Terpinene	1.60	Monoterpene
<i>para</i> -Cymene	0.84	Monoterpene
1,8-Cineole	58.06	Monoterpenic ether
Limonene	1.35	Monoterpene
(Z)- β -Ocimene	0.04	Monoterpene
(E)- β -Ocimene	0.10	Monoterpene
γ -Terpinene	1.19	Monoterpene
<i>cis</i> -Sabinene hydrate	0.36	Monoterpenic alcohol
Terpinolene	0.25	Monoterpene
<i>trans</i> -Sabinene hydrate	0.39	Monoterpenic alcohol
Linalool	0.07	Monoterpenic alcohol
<i>cis-para</i> -Menth-2-en-1-ol	0.08	Monoterpenic alcohol
<i>cis-para</i> -Mentha-2,8-dien-1-ol	0.02	Monoterpenic alcohol
<i>trans-para</i> -Menth-2-en-1-ol	0.06	Monoterpenic alcohol
Unknown	0.01	Unknown
Unknown	0.02	Oxygenated monoterpene
Unknown	0.01	Unknown
Borneol	0.05	Monoterpenic alcohol
δ -Terpineol	0.19	Monoterpenic alcohol
Terpinen-4-ol	3.25	Monoterpenic alcohol
Cryptone	0.01	Normonoterpenic ketone
α -Terpineol	4.21	Monoterpenic alcohol
<i>cis</i> -Piperitol	0.03	Monoterpenic alcohol
<i>trans</i> -Piperitol	0.04	Monoterpenic alcohol
Unknown	0.01	Unknown
Nerol	0.02	Monoterpenic alcohol

Unknown	0.01	Oxygenated monoterpene
Unknown	0.02	Unknown
Linalyl acetate	0.07	Monoterpenic ester
<i>trans</i> -Ascaridole glycol	0.01	Monoterpenic alcohol
<i>cis</i> -Ascaridole glycol	0.02	Monoterpenic alcohol
Unknown	0.02	Unknown
Unknown	0.03	Monoterpenic alcohol
α -Cubebene	0.01	Sesquiterpene
α -Ylangene	0.01	Sesquiterpene
α -Copaene	0.02	Sesquiterpene
β -Elemene	0.04	Sesquiterpene
β -Caryophyllene	0.85	Sesquiterpene
Aromadendrene	0.01	Sesquiterpene
α -Humulene	0.54	Sesquiterpene
β -Santalene	0.01	Sesquiterpene
Germacrene D	0.26	Sesquiterpene
β -Selinene	0.06	Sesquiterpene
Bicyclogermacrene	0.11	Sesquiterpene
α -Selinene	0.04	Sesquiterpene
Germacrene A	0.02	Sesquiterpene
γ -Cadinene	0.01	Sesquiterpene
δ -Cadinene	0.01	Sesquiterpene
Germacrene B	0.02	Sesquiterpene
Spathulenol	0.01	Sesquiterpenic alcohol
Caryophyllene oxide	0.02	Sesquiterpenic ether
Globulol	0.01	Sesquiterpenic alcohol
Guaiol	0.01	Sesquiterpenic alcohol
Humulene epoxide II	0.01	Sesquiterpenic ether
Isospathulenol	0.02	Sesquiterpenic alcohol
Neointermedeol	0.01	Sesquiterpenic alcohol
<i>meta</i> -Camphorene	0.01	Diterpene
Consolidated total	99.97	

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

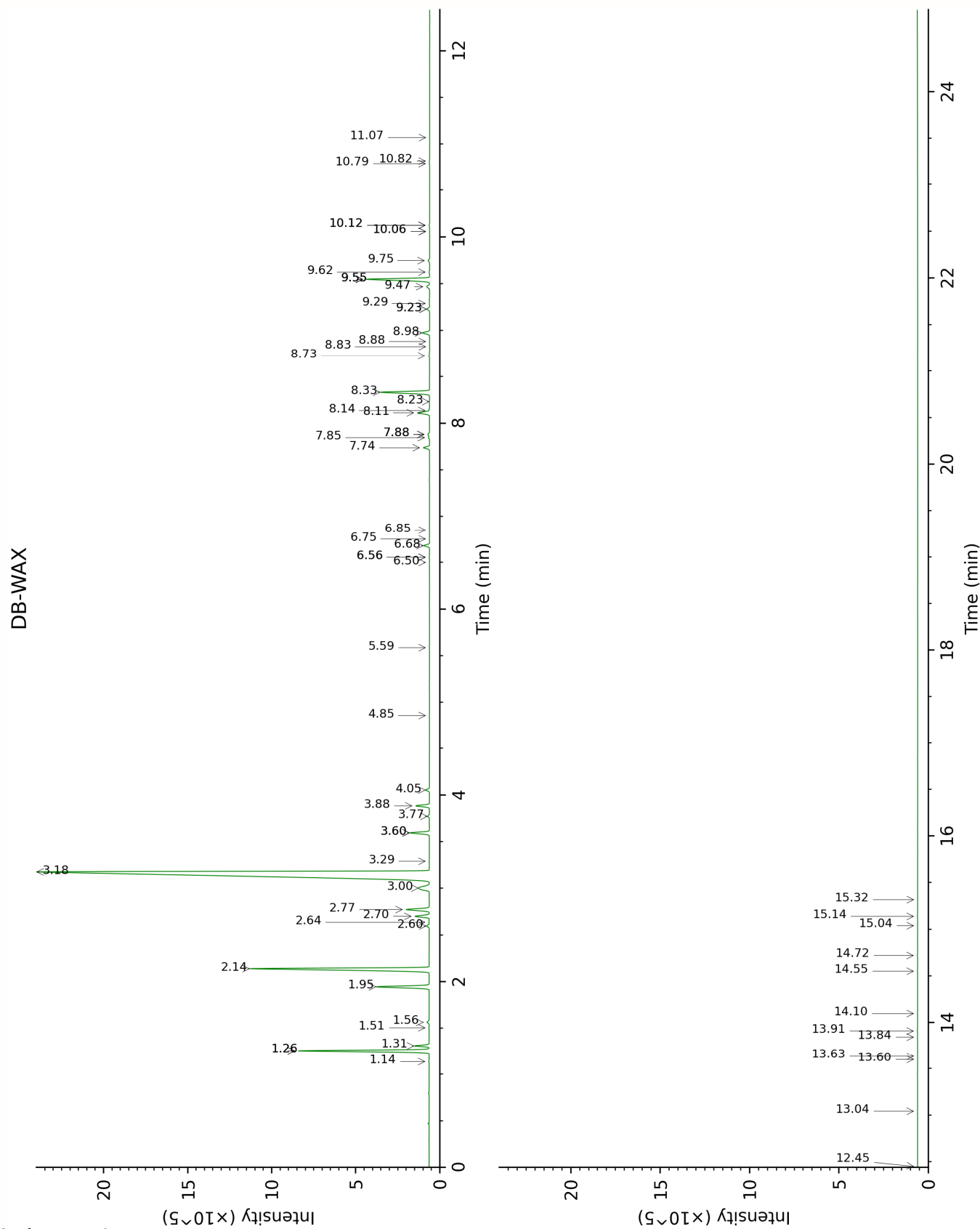
Note: no correction factor was applied

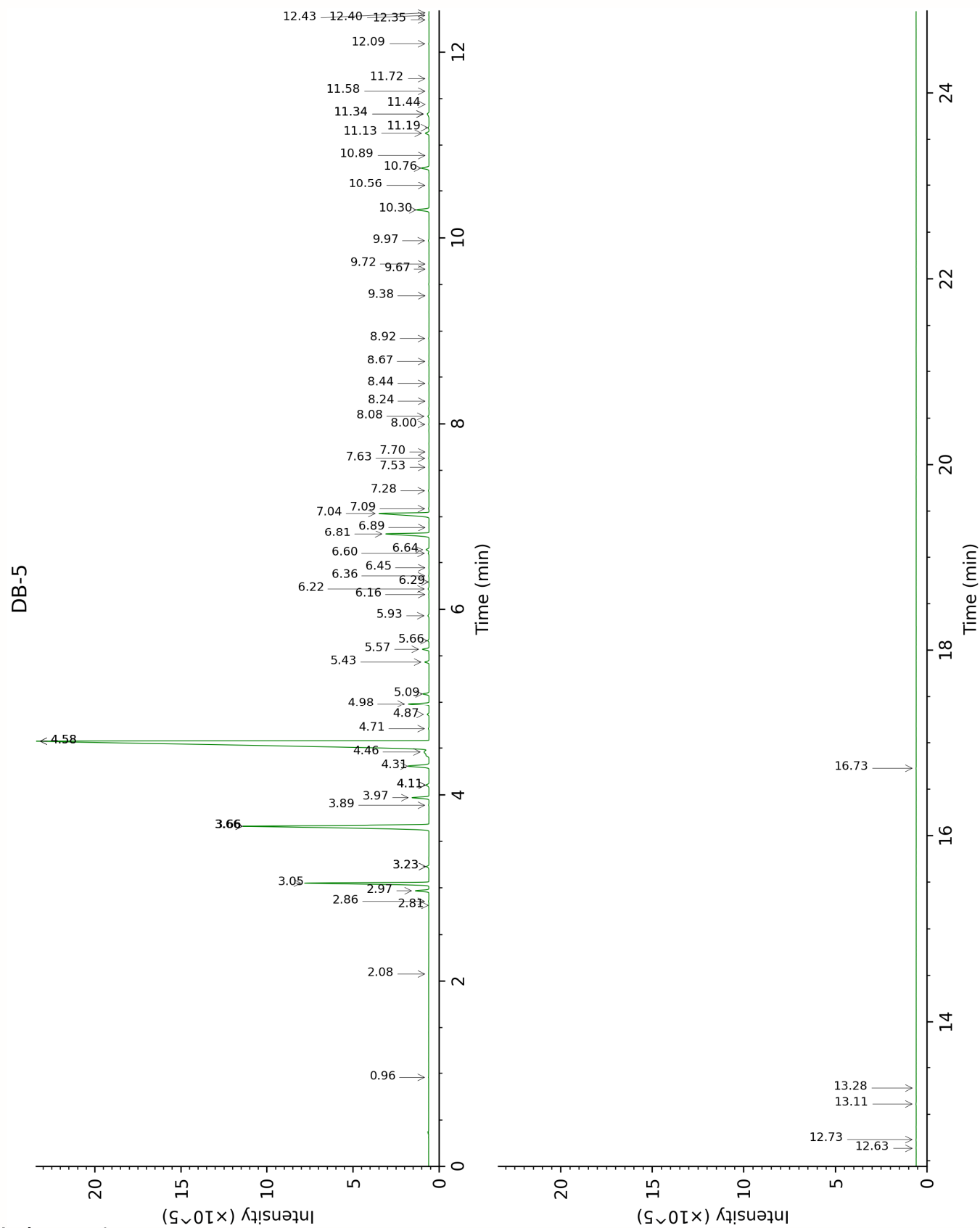
About "consolidated" data: The table above presents the breakdown of the sample volatile constituents after applying an algorithm to collapse data acquired from the multi-columns system of PhytoChemia into a single set of consolidated contents. In case of discrepancies between columns, the algorithm 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.





FULL ANALYSIS DATA

Isoamyl alcohol	Column DB-WAX			Column DB-5		
	3.29	1181.5	0.02	0.96	730.4	0.01
(3Z)-Hexenol	5.59	1351.2	0.01	2.08	855.7	0.01
Hashishene	1.26*	991.1	[7.15]	2.82	915.2	tr
Tricyclene	1.14	969.4	0.02	2.86	918.1	0.02
α -Thujene	1.31	999.5	0.71	2.97	925.7	0.72
α -Pinene	1.26*	991.1	[7.15]	3.05	931.2	7.22
Camphene	1.56	1026.1	0.14	3.23*	943.1	[0.15]
α -Fenchene	1.51	1019.9	0.01	3.23*	943.1	[0.15]
Sabinene	2.14	1086.3	12.73	3.66*	972.2	[16.33]
β -Pinene	1.94	1065.9	3.39	3.66*	972.2	[16.33]
6-Methyl-5-hepten-2-one	4.85	1297.2	0.01	3.89	987.3	0.02
Myrcene	2.70	1134.2	0.94	3.97	992.8	0.95
α -Phellandrene	2.60	1125.9	0.17	4.11*	1001.9	[0.20]
Pseudolimonene	2.64	1129.1	0.03	4.11*	1001.9	[0.20]
α -Terpinene	2.77	1140.1	1.58	4.31	1015.0	1.60
<i>para</i> -Cymene	3.88	1226.5	0.84	4.46†	1024.6	0.61
1,8-Cineole	3.18	1172.4	58.06	4.58*†	1031.9	[58.89]
Limonene	3.00	1158.5	1.35	4.58*†	1031.9	[58.89]
(Z)- β -Ocimene	3.60*	1205.3	[1.21]	4.71	1040.5	0.04
(E)- β -Ocimene	3.77	1218.3	0.10	4.86	1050.1	0.10
γ -Terpinene	3.60*	1205.3	[1.21]	4.98	1057.6	1.19
<i>cis</i> -Sabinene hydrate	6.68	1431.3	0.37	5.09	1064.6	0.36
Terpinolene	4.05	1238.9	0.24	5.44	1086.3	0.25
<i>trans</i> -Sabinene hydrate	7.74	1510.7	0.39	5.57	1095.0	0.39
Linalool	7.85	1519.1	0.07	5.66	1100.9	0.07
<i>cis-para</i> -Menth-2-en-1-ol	7.88*	1521.8	[0.13]	5.93	1118.1	0.08
<i>cis-para</i> -Mentha-2,8-dien-1-ol	9.23*	1628.1	[0.19]	6.16	1132.8	0.02
<i>trans-para</i> -Menth-2-en-1-ol	8.73	1587.7	0.05	6.22	1136.7	0.06
Unknown MEAL II [m/z 109, 124 (45), 119 (41), 43 (35), 91 (28), 95 (25)...]	6.56*	1422.0	[0.02]	6.30	1141.6	0.01
Unknown CICA III [m/z 109, 41 (49), 124 (41), 43 (31), 95 (28), 84 (22)... 152 (7)]	6.56*	1422.0	[0.02]	6.36	1145.8	0.02

Unknown CICA VIII [m/z 71, 85 (48), 43 (42), 57 (38), 58 (37), 41 (21), ... 155 (12)]				6.45	1151.4	0.01
Borneol	9.55*	1654.1	[4.24]	6.60	1161.5	0.05
δ-Terpineol	9.23*	1628.1	[0.19]	6.64	1164.0	0.19
Terpinen-4-ol	8.33	1557.0	3.25	6.81	1174.9	3.25
Cryptone	8.88	1599.9	0.01	6.89	1179.9	0.01
α-Terpineol	9.55*	1654.1	[4.24]	7.04	1189.7	4.21
cis-Piperitol	9.29	1633.1	0.03	7.09	1193.0	0.03
trans-Piperitol	10.12*	1701.1	[0.05]	7.28	1205.5	0.04
Unknown CICA IV [m/z 43, 97 (72), 41 (44), 71 (27), 55 (26), 82 (25)...]				7.53	1222.5	0.01
Nerol	10.82	1760.3	0.02	7.63	1229.0	0.02
Unknown CIAU II [m/z 137, 152 (28), 43 (25), 91 (24), 109 (23), 119 (19)]	11.07	1781.7	tr	7.70	1233.7	0.01
Unknown BOFR VIII [m/z 43, 93 (87), 121 (59), 136 (44), 71 (30)...]				8.00	1253.7	0.02
Linalyl acetate	7.88*	1521.8	[0.13]	8.08	1259.6	0.07
trans-Ascaridole glycol	13.91	2041.8	0.03	8.24	1270.6	0.01
cis-Ascaridole glycol	14.55	2104.3	0.02	8.44	1283.6	0.02
Unknown CICA VI [m/z 112, 97 (93), 83 (60), 43 (46), 41 (20), 69 (19)...]	13.64	2015.2	tr	8.67	1299.6	0.02
Unknown MEAL I [m/z 97, 112 (92), 83 (62), 43 (44), 41 (25)... 170? (4)]	14.72	2121.3	0.02	8.92	1314.0	0.03
α-Cubebene	6.50	1417.9	0.01	9.38	1346.6	0.01
α-Ylangene	6.75	1436.7	0.01	9.67	1366.9	0.01
α-Copaene	6.85	1444.1	0.01	9.72	1370.8	0.02
β-Elementene	8.14	1541.8	0.03	9.97	1388.5	0.04
β-Caryophyllene	8.11	1539.8	0.85	10.30	1412.5	0.85
Aromadendrene	8.23	1549.2	0.01	10.56	1432.1	0.01
α-Humulene	8.98	1607.5	0.52	10.76	1446.6	0.54

β -Santalene	8.83	1595.6	0.01	10.89	1456.7	0.01
Germacrene D	9.47	1647.6	0.25	11.13	1474.7	0.26
β -Selinene	9.55*	1654.1	[4.24]	11.19	1479.2	0.06
Bicyclogermacrene	9.75	1670.3	0.11	11.34*	1490.2	[0.18]
α -Selinene	9.62	1660.3	0.04	11.34*	1490.2	[0.18]
Germacrene A	10.06*	1695.6	[0.01]	11.44	1497.9	0.02
γ -Cadinene	10.06*	1695.6	[0.01]	11.58	1508.8	0.01
δ -Cadinene	10.12*	1701.1	[0.05]	11.72	1519.5	0.01
Germacrene B	10.79	1757.9	0.03	12.09	1549.0	0.02
Spathulenol	14.10	2060.0	0.01	12.35	1569.3	0.01
Caryophyllene oxide	12.45	1903.9	0.01	12.40	1573.3	0.02
Globulol	13.60	2011.9	tr	12.42	1575.5	0.01
Guaïol	13.84	2035.5	0.01	12.64	1592.1	0.01
Humulene epoxide II	13.04	1959.4	0.01	12.73	1599.6	0.01
Isospathulenol	15.14	2163.5	0.02	13.11	1631.1	0.02
Neointermedeol	15.32	2181.6	tr	13.28	1645.4	0.01
<i>meta</i> -Camphorene	15.04	2153.5	0.01	16.73	1950.7	0.01
Total reported		99.56%			99.46%	

*: 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