

Date : 2024-08-23

CERTIFICATE OF ANALYSIS - GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 24H09-NSO02

Customer Identification : Rosalina Oil - Lot No: L0H0213C

Type : Essential Oil

Source : *Melaleuca ericifolia* ct. Linalool

Customer : Natural Sourcing LLC

Checked and approved by:

Alexis St-Gelais, Ph. D., Chimiste 2013-174

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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 : Benoit Roger, Ph. D.

Date : 2024-08-22

PHYSICOCHEMICAL DATA

Refractive index : 1.4652 ± 0.0003 (20 °C)

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

Analyst : Cindy Caron B. Sc.

Date : 2024-08-09

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
Methyl 2-methylbutyrate	0.02	Aliphatic ester
α -Thujene	0.06	Monoterpene
α -Pinene	4.56	Monoterpene
α -Fenchene	0.01	Monoterpene
Camphene	0.04	Monoterpene
Benzaldehyde	0.05	Simple phenolic
β -Pinene	1.27	Monoterpene
Sabinene	0.01	Monoterpene
6-Methyl-5-hepten-2-one	0.01	Aliphatic ketone
Myrcene	0.51	Monoterpene
α -Phellandrene	0.02	Monoterpene
Pseudolimonene	0.02	Monoterpene
α -Terpinene	0.10	Monoterpene
<i>para</i> -Cymene	0.85	Monoterpene
Limonene	3.57	Monoterpene
1,8-Cineole	28.64	Monoterpenic ether
(<i>Z</i>)- β -Ocimene	0.01	Monoterpene
(<i>E</i>)- β -Ocimene	0.04	Monoterpene
γ -Terpinene	2.09	Monoterpene
<i>cis</i> -Sabinene hydrate	0.01	Monoterpenic alcohol
<i>cis</i> -Linalool oxide (fur.)	0.87	Monoterpenic alcohol
<i>trans</i> -Linalool oxide (fur.)	0.83	Monoterpenic alcohol
<i>para</i> -Cymenene	0.01	Monoterpene
Terpinolene	0.14	Monoterpene
Linalool	43.08	Monoterpenic alcohol
endo-Fenchol	0.03	Monoterpenic alcohol
<i>trans</i> -Pinocarveol	0.02	Monoterpenic alcohol
Camphor	0.04	Monoterpenic ketone
<i>cis</i> - α -Dihydroterpineol	0.07	Monoterpenic alcohol
Borneol	0.02	Monoterpenic alcohol
δ -Terpineol	0.07	Monoterpenic alcohol
Terpinen-4-ol	2.78	Monoterpenic alcohol
<i>para</i> -Cymen-8-ol	0.01	Monoterpenic alcohol
α -Terpineol	3.66	Monoterpenic alcohol
<i>cis</i> -Piperitol	0.03	Monoterpenic alcohol
Unknown	0.02	Unknown
Citronellol	0.04	Monoterpenic alcohol
Geraniol	0.02	Monoterpenic alcohol
Methyl thiobenzoate?	0.01	Simple phenolic
δ -Terpinyl acetate	0.02	Monoterpenic ester

α -Terpinyl acetate	0.86	Monoterpenic ester
Hodiendiol derivative	tr	Oxygenated monoterpene
Eugenol	0.02	Phenylpropanoid
α -Copaene	0.02	Sesquiterpene
7-Cubebene	0.02	Sesquiterpene
α -Gurjunene	0.04	Sesquiterpene
β -Caryophyllene	0.52	Sesquiterpene
β -Gurjunene	0.01	Sesquiterpene
Aromadendrene	0.05	Sesquiterpene
α -Humulene	0.09	Sesquiterpene
allo-Aromadendrene	0.13	Sesquiterpene
Selina-4,11-diene	0.02	Sesquiterpene
Germacrene D	0.01	Sesquiterpene
β -Selinene	0.06	Sesquiterpene
allo-Aromadendr-9-ene	0.04	Sesquiterpene
Bicyclogermacrene	0.02	Sesquiterpene
Viridiflorene	0.18	Sesquiterpene
α -Selinene	0.06	Sesquiterpene
γ -Cadinene	0.06	Sesquiterpene
δ -Cadinene	[0.07]	Sesquiterpene
Zonarene	[0.07]	Sesquiterpene
Palustrol	0.04	Sesquiterpenic alcohol
(E)-Nerolidol	0.38	Sesquiterpenic alcohol
Caryophyllene oxide	0.08	Sesquiterpenic ether
Caryophyllene oxide isomer	0.02	Sesquiterpenic ether
Globulol	1.56	Sesquiterpenic alcohol
Viridiflorol	1.41	Sesquiterpenic alcohol
Cubeban-11-ol	0.03	Sesquiterpenic alcohol
Ledol	0.18	Sesquiterpenic alcohol
1-epi-Cubenol	0.01	Sesquiterpenic alcohol
γ -Eudesmol	0.01	Sesquiterpenic alcohol
τ -Cadinol	0.02	Sesquiterpenic alcohol
β -Eudesmol	0.02	Sesquiterpenic alcohol
α -Eudesmol	0.02	Sesquiterpenic alcohol
Consolidated total	99.73	

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

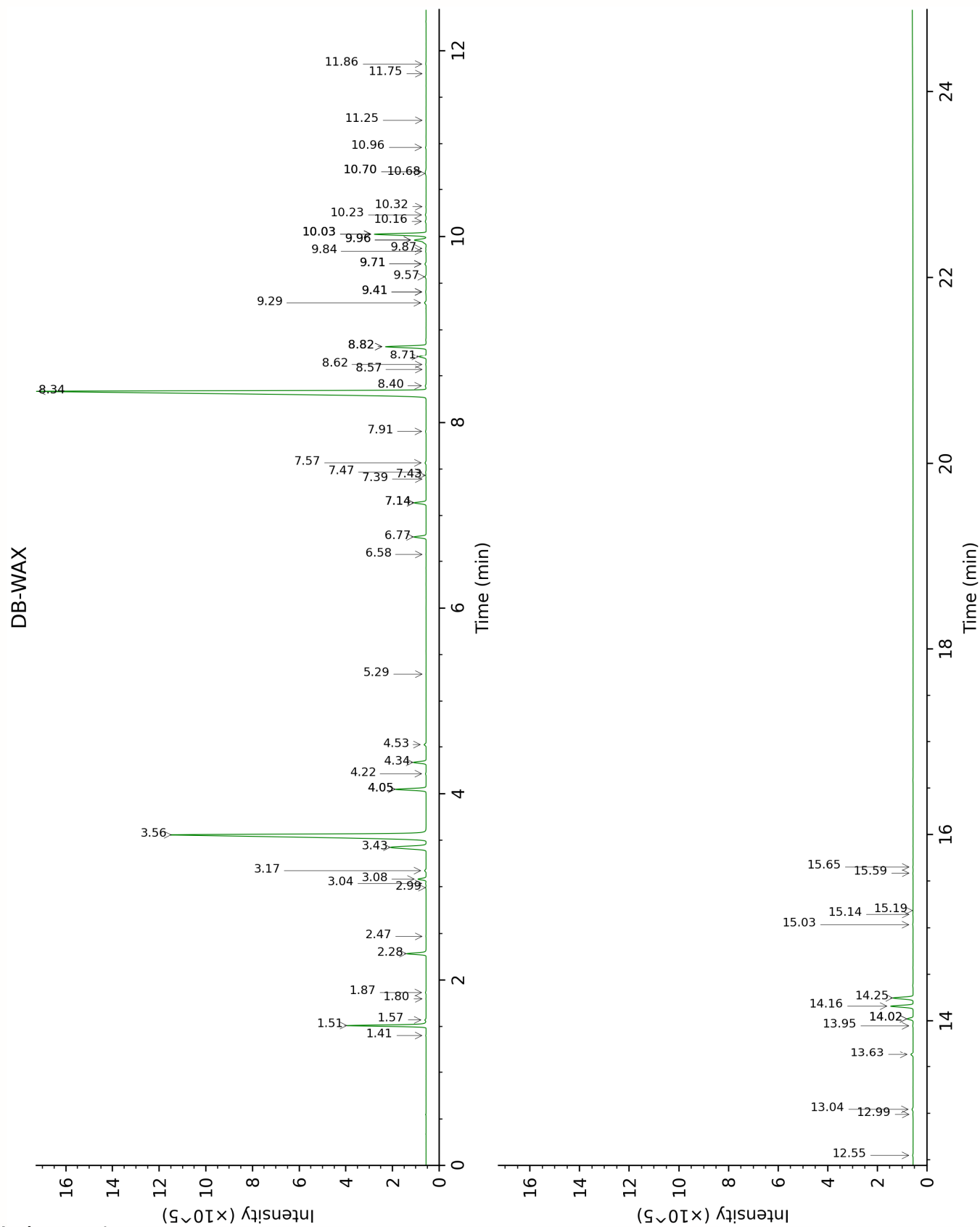
Note: no correction factor was applied

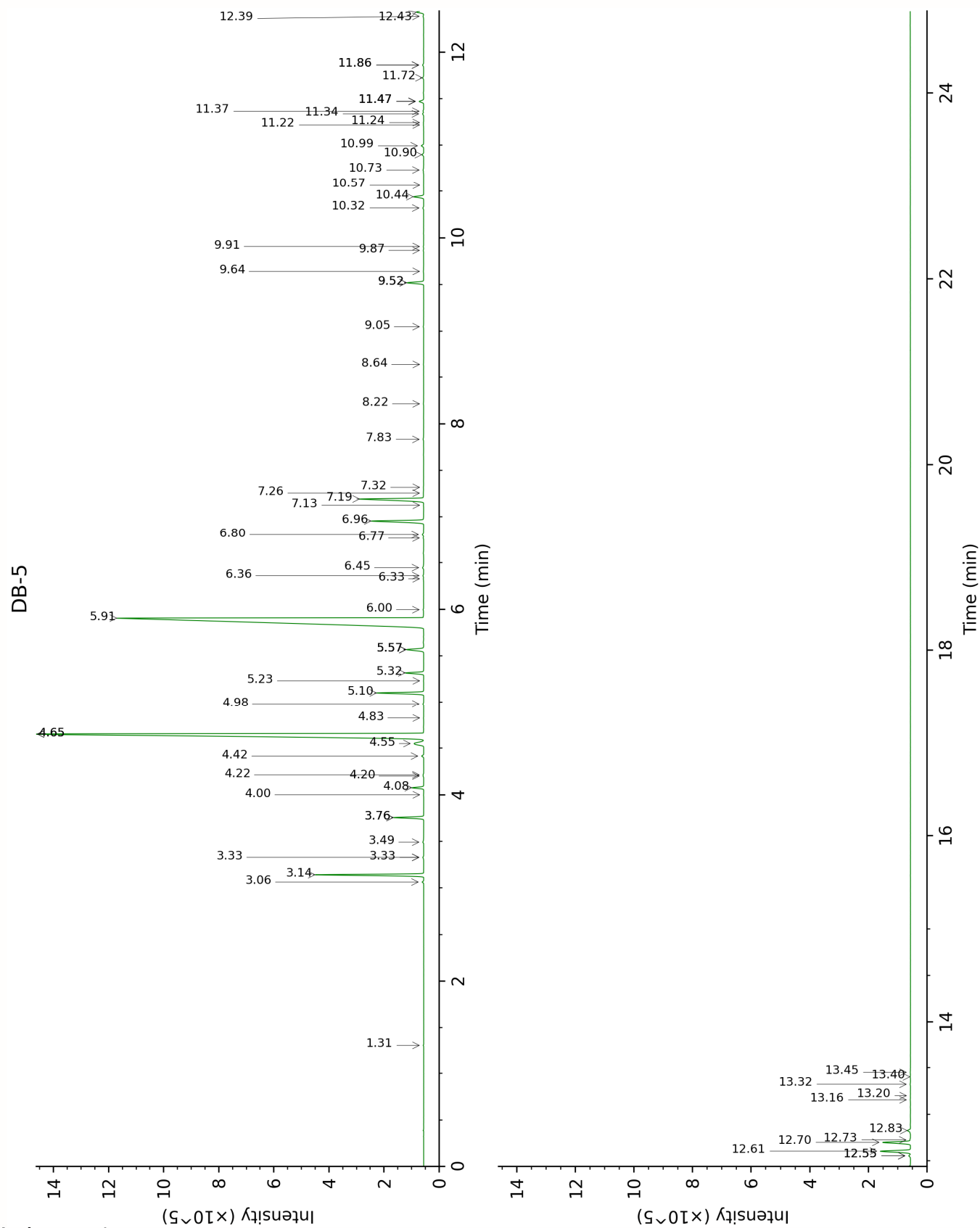
About "consolidated" data: The table above presents the breakdown of the sample volatile constituents after applying an algorithm to collapse data acquired from the multi-columns system of PhytoChemia into a single set of consolidated contents. In case of discrepancies between columns, the algorithm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

Methyl 2-methylbutyrate	Column DB-WAX			Column DB-5		
	1.40	977.2	0.01	1.31	773.9	0.02
α-Thujene	1.57	999.8	0.07	3.06	925.7	0.06
α-Pinene	1.51	993.6	4.54	3.14	930.8	4.56
α-Fenchene	1.80	1021.4	0.01	3.33*	943.2	[0.05]
Camphene	1.87	1027.8	0.04	3.33*	943.2	[0.05]
Benzaldehyde	7.57	1460.1	0.08	3.49	953.9	0.05
β-Pinene	2.28	1067.6	1.27	3.76*	971.4	[1.28]
Sabinene	2.47	1085.2	0.01	3.76*	971.4	[1.28]
6-Methyl-5-hepten-2-one	5.29	1295.8	0.01	4.00	987.5	0.01
Myrcene	3.08	1134.1	0.51	4.08	992.6	0.51
α-Phellandrene	2.99	1127.0	0.02	4.20*†	1000.8	[0.02]
Pseudolimonene	3.04	1130.5	0.02	4.22*†	1001.7	[0.03]
α-Terpinene	3.18	1141.0	0.10	4.42	1014.3	0.10
para-Cymene	4.34	1227.5	0.86	4.55	1022.8	0.85
Limonene	3.43	1160.1	3.57	4.65*	1029.1	[32.30]
1,8-Cineole	3.56	1170.4	28.64	4.65*	1029.1	[32.30]
(Z)-β-Ocimene	4.05*	1206.9	[2.10]	4.83	1040.0	0.01
(E)-β-Ocimene	4.22	1218.8	0.04	4.98	1049.7	0.04
γ-Terpinene	4.05*	1206.9	[2.10]	5.10	1057.2	2.09
cis-Sabinene hydrate	7.14*	1428.5	[0.84]	5.23	1065.3	0.01
cis-Linalool oxide (fur.)	6.77	1401.0	0.87	5.32	1070.7	0.87
trans-Linalool oxide (fur.)	7.14*	1428.5	[0.84]	5.57*	1086.3	[0.96]
para-Cymenene	6.58	1387.3	0.01	5.57*	1086.3	[0.96]
Terpinolene	4.53	1241.1	0.14	5.57*	1086.3	[0.96]
Linalool	8.34	1517.7	43.08	5.91	1107.5	43.08
endo-Fenchol	8.62	1539.8	0.03	6.00	1113.3	0.03
trans-Pinocarveol	9.41*	1600.5	[0.05]	6.33	1134.5	0.02
Camphor	7.47	1452.7	0.04	6.36	1136.7	0.04
cis-α-Dihydroterpineol	8.40	1522.3	0.07	6.45	1142.1	0.07
Borneol	10.03*	1650.2	[3.69]	6.77	1162.5	0.02
δ-Terpineol	9.71*	1624.6	[0.09]	6.80	1164.8	0.07
Terpinen-4-ol	8.82*	1555.2	[2.81]	6.96	1174.5	2.78
para-Cymen-8-ol	11.75	1794.0	0.01	7.13	1185.3	0.01
α-Terpineol	10.03*	1650.2	[3.69]	7.19	1189.6	3.66
cis-Piperitol	9.87	1638.0	0.03	7.26	1193.6	0.03
Unknown SASC VI [m/z 43, 71 (80), 67 (55), 59 (51), 68	11.25	1751.7	0.01	7.32	1197.6	0.02

(44), 41 (43)...						
Citronellol	10.96	1727.2	0.05	7.83	1231.8	0.04
Geraniol	11.86	1803.0	0.04	8.22	1257.2	0.02
Methyl thiobenzoate?				8.64	1285.5	0.01
δ-Terpinyl acetate	9.41*	1600.5	[0.05]	9.05	1313.6	0.02
α-Terpinyl acetate	9.96*	1645.2	[1.04]	9.52*	1346.7	[0.83]
Hodiendiol derivative				9.52*	1346.7	[0.83]
Eugenol	15.03	2095.8	0.04	9.64	1355.2	0.02
α-Copaene	7.43	1450.2	0.02	9.87	1371.0	0.02
7-Cubebene	7.39	1447.3	0.02	9.91	1373.9	0.02
α-Gurjunene	7.91	1484.9	0.04	10.32	1403.0	0.04
β-Caryophyllene	8.71	1546.4	0.53	10.44	1412.0	0.52
β-Gurjunene	8.57	1535.7	0.01	10.57	1421.2	0.01
Aromadendrene	8.82*	1555.2	[2.81]	10.73	1433.8	0.05
α-Humulene	9.57	1613.6	0.09	10.90	1446.0	0.09
allo- Aromadendrene	9.29	1591.2	0.12	11.00	1453.1	0.13
Selina-4,11-diene	9.71*	1624.6	[0.09]	11.22	1469.7	0.02
Germacrene D	10.03*	1650.2	[3.69]	11.24	1471.6	0.01
β-Selinene	10.16	1661.2	0.07	11.34	1478.6	0.06
allo-Aromadendr- 9-ene	9.84	1635.5	0.03	11.37	1480.7	0.04
Bicyclogermacrene	10.32	1673.9	0.02	11.47*	1488.5	[0.26]
Viridiflorene	9.96*	1645.2	[1.04]	11.47*	1488.5	[0.26]
α-Selinene	10.23	1666.8	0.06	11.47*	1488.5	[0.26]
γ-Cadinene	10.68	1703.6	0.05	11.72	1507.7	0.06
δ-Cadinene	10.70*	1705.1	[0.06]	11.86*	1518.4	[0.07]
Zonarene	10.70*	1705.1	[0.06]	11.86*	1518.4	[0.07]
Palustrol	12.55	1863.9	0.04	12.39	1559.4	0.04
(E)-Nerolidol	14.02*	1998.7	[0.39]	12.43	1563.0	0.38
Caryophyllene oxide	13.04	1908.3	0.08	12.56*	1572.7	[0.09]
Caryophyllene oxide isomer	12.99	1903.3	0.02	12.56*	1572.7	[0.09]
Globulol	14.16	2011.7	1.57	12.60	1576.6	1.56
Viridiflorol	14.25	2020.2	1.42	12.70	1584.0	1.41
Cubeban-11-ol	13.95	1991.5	0.04	12.73	1586.1	0.03
Ledol	13.63	1962.5	0.16	12.83	1594.0	0.18
1-epi-Cubenol	14.02*	1998.7	[0.39]	13.16	1620.8	0.01
γ-Eudesmol	15.19	2110.9	0.01	13.20	1624.5	0.01
τ-Cadinol	15.14	2106.8	0.02	13.32	1634.6	0.02
β-Eudesmol	15.65	2157.3	0.02	13.40	1641.2	0.02
α-Eudesmol	15.59	2150.8	0.02	13.45	1645.2	0.02

Total reported	99.74%			99.76%		

*: 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