

Date : 2023-12-18

CERTIFICATE OF ANALYSIS - GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 23L14-PTH07

Customer Identification : Lemon Myrtle - Australia - LP0107R

Type : Essential Oil

Source : *Backhousia citriodora*

Customer : Plant Therapy

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

Date : 2023-12-18

PHYSICOCHEMICAL DATA

Refractive index : 1.4875 ± 0.0003 (20 °C)

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

Analyst : Cindy Caron B. Sc.

Date : 2023-12-18

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
2-Methyl-3-buten-2-ol	0.01	Aliphatic alcohol
Methyl 2-methylbutyrate	0.02	Aliphatic ester
(2E)-Hexenal	0.01	Aliphatic aldehyde
(3Z)-Hexenol	0.05	Aliphatic alcohol
Hexanol	0.02	Aliphatic alcohol
2,6-Dimethyl-1,5-heptadiene	0.02	Normonoterpene
Unknown	0.01	Unknown
6-Methyl-5-hepten-2-one	0.38	Aliphatic ketone
Dehydro-1,8-cineole	0.09	Monoterpenic ether
Myrcene	0.12	Monoterpene
(3Z)-Hexenyl acetate	0.01	Aliphatic ester
<i>para</i> -Cymene	0.03	Monoterpene
Limonene	0.03	Monoterpene
(Z)- β -Ocimene	0.02	Monoterpene
(E)- β -Ocimene	0.04	Monoterpene
<i>trans</i> -Linalool oxide (fur.)	0.02	Monoterpenic alcohol
Terpinolene	0.01	Monoterpene
Rosefuran	0.02	Monoterpenic ether
Linalool	0.46	Monoterpenic alcohol
<i>cis</i> -Chrysanthemal?	0.03	Monoterpenic aldehyde
α -Cyclocitral	0.01	Monoterpenic aldehyde
<i>cis-para</i> -Menth-2-en-1-ol	0.03	Monoterpenic alcohol
<i>cis-para</i> -Mentha-2,8-dien-1-ol	0.04	Monoterpenic alcohol
<i>trans-para</i> -Menth-2-en-1-ol	0.04	Monoterpenic alcohol
Isopulegol	0.01	Monoterpenic alcohol
<i>trans</i> -Chrysanthemal	0.04	Monoterpenic aldehyde
<i>exo</i> -Isocitral	0.17	Monoterpenic aldehyde
Citronellal	0.32	Monoterpenic aldehyde
Borneol	0.02	Monoterpenic alcohol
α -Phellandren-8-ol	0.09	Monoterpenic alcohol
Isoneral	0.75	Monoterpenic aldehyde
Terpinen-4-ol	0.04	Monoterpenic alcohol
Unknown	0.18	Oxygenated monoterpene
Isogeranial	1.36	Monoterpenic aldehyde
<i>para</i> -Cymen-8-ol	0.01	Monoterpenic alcohol
α -Terpineol	0.12	Monoterpenic alcohol
β -Phellandren-8-ol	0.05	Monoterpenic alcohol
<i>trans</i> -Isopiperitenol	0.05	Monoterpenic alcohol
Unknown	0.09	Oxygenated monoterpene
Unknown	0.04	Oxygenated monoterpene

cis-Isopiperitenol	0.03	Monoterpenic alcohol
Nerol	0.39	Monoterpenic alcohol
Neral	38.34	Monoterpenic aldehyde
Piperitone	0.08	Monoterpenic ketone
Geraniol	0.70	Monoterpenic alcohol
Geranial	51.12	Monoterpenic aldehyde
Unknown	0.10	Oxygenated monoterpene
Citronellic acid	0.01	Monoterpenic acid
Unknown	0.08	Unknown
Neric acid	0.01	Monoterpenic acid
α -Terpinyl acetate	0.04	Monoterpenic ester
Unknown	0.05	Unknown
8-Hydroxy-iso-menthol	0.04	Monoterpenic alcohol
Geranic acid	0.06	Aliphatic acid
α -Copaene	0.02	Sesquiterpene
Unknown	0.15	Unknown
Geranyl acetate	0.99	Monoterpenic ester
β -Elemene	0.16	Sesquiterpene
β -Caryophyllene	1.20	Sesquiterpene
Aromadendrene	0.03	Sesquiterpene
α -Humulene	0.06	Sesquiterpene
allo-Aromadendrene	0.01	Sesquiterpene
(E)- β -Farnesene	0.01	Sesquiterpene
Germacrene D	0.03	Sesquiterpene
Viridiflorene	0.05	Sesquiterpene
β -Bisabolene	0.03	Sesquiterpene
γ -Cadinene	tr	Sesquiterpene
δ -Cadinene	0.03	Sesquiterpene
Spathulenol	0.02	Sesquiterpenic alcohol
Caryophyllene oxide isomer	0.02	Sesquiterpenic ether
Caryophyllene oxide	0.06	Sesquiterpenic ether
Unknown	0.01	Oxygenated sesquiterpene
Isospathulenol	0.02	Sesquiterpenic alcohol
Unknown	0.01	Unknown
Unknown	0.04	Unknown
Unknown	0.01	Unknown
Unknown	0.01	Oxygenated diterpene
Unknown	0.01	Unknown
Unknown	0.02	Unknown
Unknown	0.01	Unknown
Consolidated total	98.92	

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

Note: no correction factor was applied

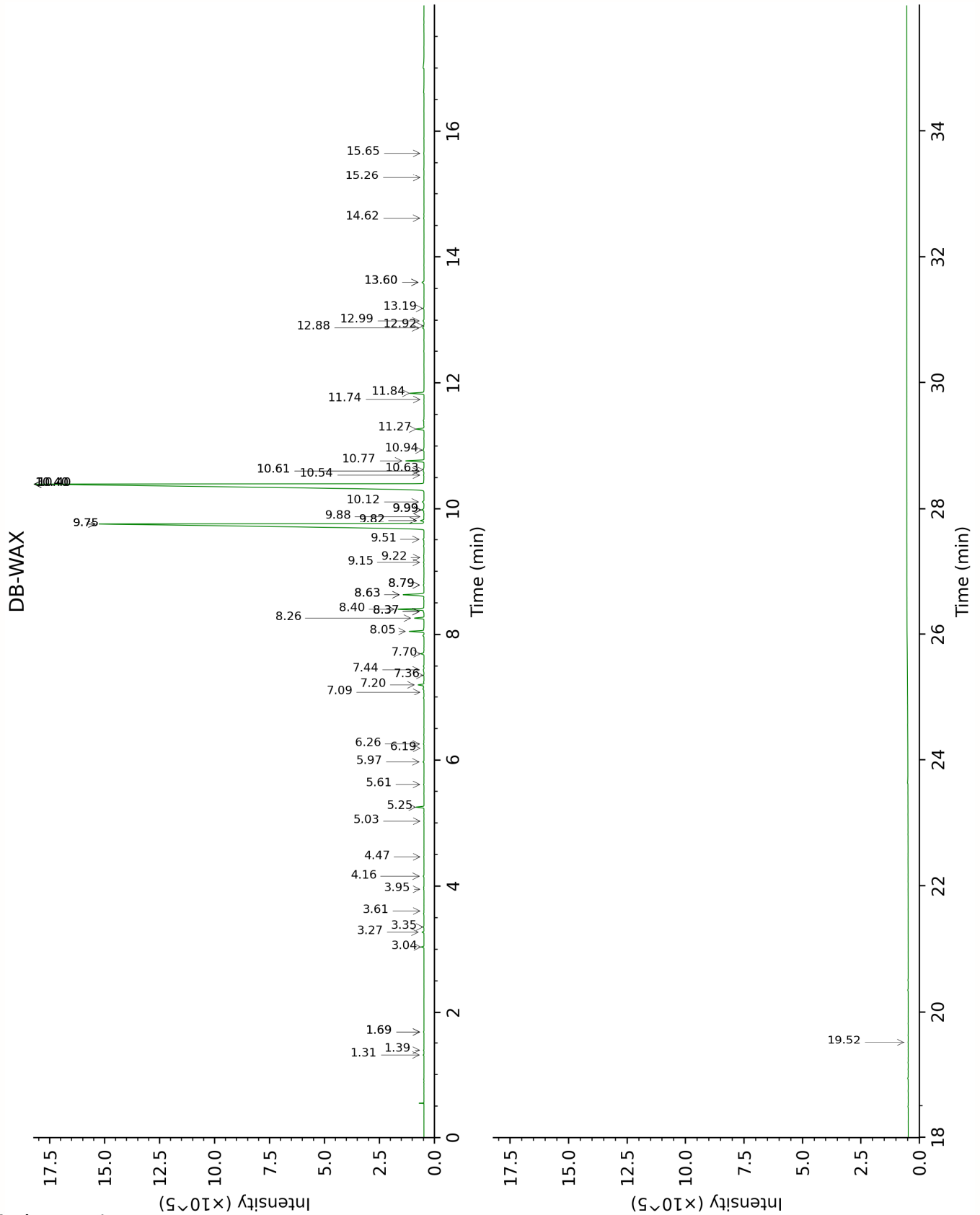
About "consolidated" data: The table above presents the breakdown of the sample volatile constituents after applying an algorithm to collapse data acquired from the multi-columns system of PhytoChemia into a single set of consolidated contents. In case of discrepancies between columns, the algorithm is set to prioritize data from the most standard DB-5 column, and smallest values so as to avoid

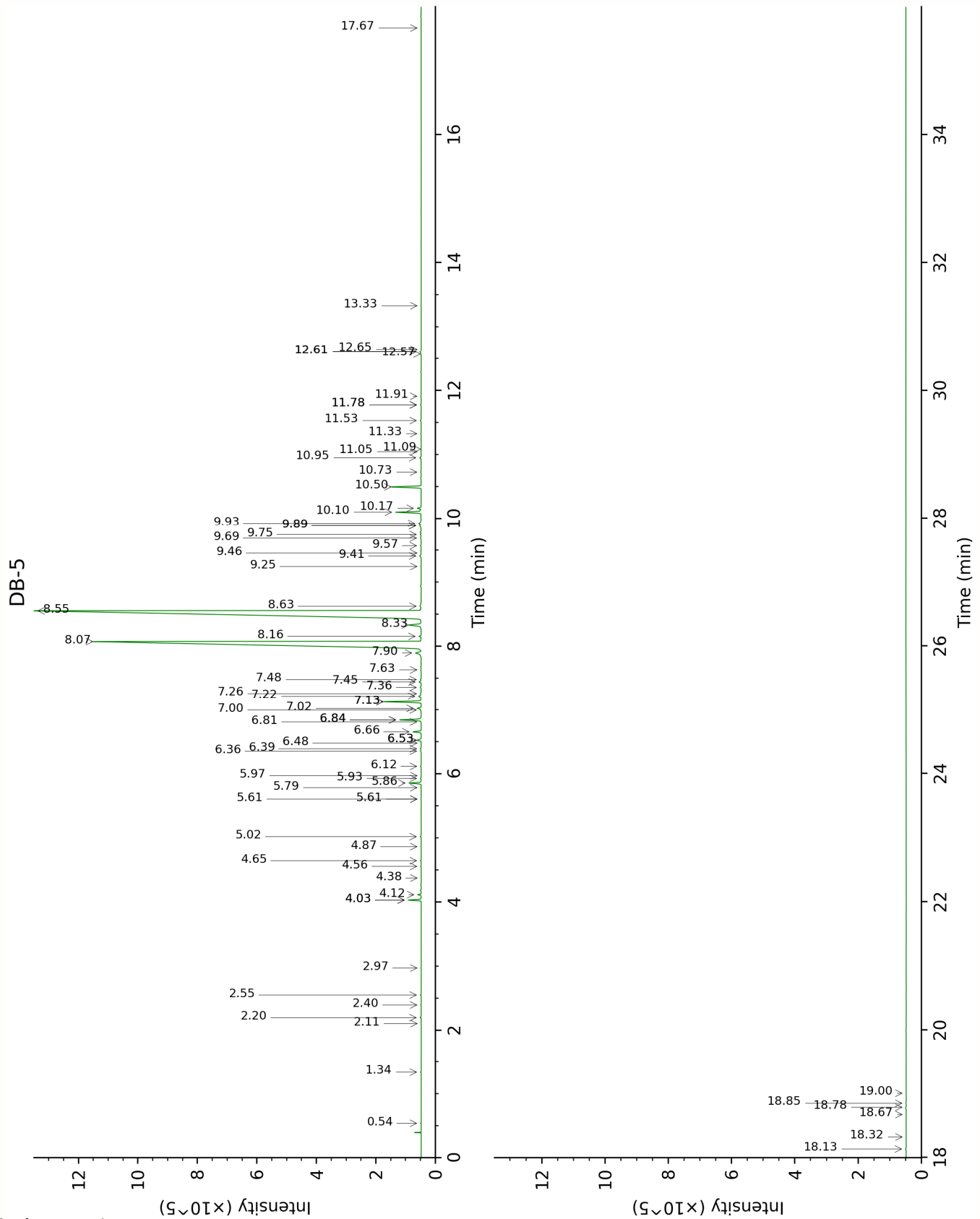
overestimating individual content. This process is semi-automatic. Advanced users are invited to consult the "Full analysis data" table after the chromatograms in this report to access the full untreated data and perform their own calculations if needed.

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

2-Methyl-3-buten-2-ol	Column DB-WAX			Column DB-5		
	1.69*	1014.4	[0.02]	0.54	606.3	0.01
Methyl 2-methylbutyrate	1.39	977.9	0.02	1.34	774.5	0.02
(2E)-Hexenal	3.61	1176.5	0.01	2.11	849.9	0.01
(3Z)-Hexenol	5.97	1347.7	0.05	2.20	857.5	0.05
Hexanol	5.61	1322.1	0.02	2.40	873.7	0.02
2,6-Dimethyl-1,5-heptadiene	1.32	966.5	0.03	2.55	886.4	0.02
Unknown HYPE V [m/z 67, 109 (89), 124 (85), 41 (41), 81 (35), 55 (24)...]	1.69*	1014.4	[0.02]	2.97	917.8	0.01
6-Methyl-5-hepten-2-one	5.25	1294.9	0.38	4.03*	987.5	[0.45]
Dehydro-1,8-cineole	3.27	1151.0	0.09	4.03*	987.5	[0.45]
Myrcene	3.04	1133.2	0.11	4.12	993.0	0.12
(3Z)-Hexenyl acetate	5.03	1279.1	0.01	4.38	1009.9	0.01
<i>para</i> -Cymene				4.56	1021.2	0.03
Limonene	3.36	1157.2	0.03	4.65	1026.8	0.03
(Z)- β -Ocimene	3.95	1202.4	0.02	4.87	1040.4	0.02
(E)- β -Ocimene	4.16	1217.1	0.04	5.02	1050.2	0.04
<i>trans</i> -Linalool oxide (fur.)	7.09	1428.3	0.02	5.61*	1086.8	[0.02]
Terpinolene	4.47	1238.9	0.01	5.61*	1086.8	[0.02]
Rosefuran	6.19	1363.1	0.01	5.79	1097.9	0.02
Linalool	8.26	1515.8	0.46	5.86	1102.4	0.46
<i>cis</i> -Chrysanthemal?	6.26	1368.0	0.03	5.93	1106.9	0.03
α -Cyclocitral				5.97	1109.7	0.01
<i>cis-para</i> -Menth-2-en-1-ol	8.37*	1523.9	[0.04]	6.12	1119.0	0.03
<i>cis-para</i> -Mentha-2,8-dien-1-ol	9.75*	1632.4	[38.28]	6.36	1134.1	0.04
<i>trans-para</i> -Menth-2-en-1-ol	9.15	1584.0	0.03	6.39	1136.5	0.04
Isopulegol	8.37*	1523.9	[0.04]	6.48	1142.1	0.01
<i>trans</i> -Chrysanthemal	7.44	1454.6	0.04	6.53*	1145.0	[0.20]
exo-Isocitral	7.70	1473.4	0.17	6.53*	1145.0	[0.20]

Citronellal	7.20	1437.0	0.30	6.66	1153.3	0.32
Borneol	9.99*	1651.4	[0.15]	6.81	1163.2	0.02
α -Phellandren-8-ol	10.40*	1684.3	[51.27]	6.84*	1165.2	[0.84]
Isoneral	8.05	1499.6	0.75	6.84*	1165.2	[0.84]
Terpinen-4-ol	8.79*	1556.3	[0.04]	7.00	1175.1	0.04
Unknown CYFL V [m/z 84, 83 (74), 137 (56), 41 (47), 93 (43), 108 (40)... 152 (2)]	9.82*	1637.7	[0.19]	7.02	1176.7	0.18
Isogeranial	8.40	1526.8	1.36	7.13*	1183.4	[1.44]
<i>para</i> -Cymen-8-ol	11.74	1797.0	0.01	7.13*	1183.4	[1.44]
α -Terpineol	9.99*	1651.4	[0.15]	7.22	1189.3	0.12
β -Phellandren-8-ol	10.94	1729.3	0.07	7.26	1191.9	0.05
<i>trans</i> -Isopiperitenol	10.60*	1701.3	[0.05]	7.36	1198.1	0.05
Unknown CYFL VI [m/z 84, 41 (83), 83 (79), 91 (76), 93 (67), 119 (64), 137 (63), 109 (54), 108 (54)... 152 (4)]	10.40*	1684.3	[51.27]	7.44	1203.6	0.09
Unknown DRMO II [m/z 123, 81 (40), 67 (29), 79 (29), 93 (26), 121 (25), 41 (24), 55 (18), 69 (15)...]				7.48	1206.0	0.04
<i>cis</i> -Isopiperitenol	10.54	1695.9	0.03	7.63	1216.2	0.03
Nerol	11.27	1757.4	0.43	7.90	1233.7	0.39
Neral	9.75*	1632.4	[38.28]	8.08	1245.6	38.34
Piperitone	10.12	1661.6	0.11	8.16	1251.1	0.08
Geraniol	11.84	1805.7	0.77	8.33	1262.9	0.70
Geranial	10.40*	1684.3	[51.27]	8.56	1277.7	51.12
Unknown CYFL VII [m/z 43, 69 (77), 41 (70), 109 (54)... 152 (6)]	13.19	1926.4	0.05	8.63	1282.5	0.10
Citronellic acid				9.25	1325.0	0.01
Unknown CYFL	12.88	1898.1	0.08	9.41	1336.5	0.08

VIII [m/z 82, 59 (44), 41 (43), 95 (31), 43 (29), 81 (24)...]						
Neric acid				9.46	1339.8	0.01
α -Terpinyl acetate	9.88	1642.7	0.02	9.57	1347.8	0.04
Unknown LICU I [m/z 110, 95 (98), 109 (40), 43 (35), 111 (32)... 153 (13)...]	13.60*	1964.2	[0.14]	9.69	1356.3	0.05
8-Hydroxy-isomenthol	15.26	2122.7	0.01	9.75	1360.1	0.04
Geranic acid				9.89*	1370.0	[0.08]
α -Copaene	7.36	1448.1	0.02	9.89*	1370.0	[0.08]
Unknown ZIOF XI [m/z 81, 59 (94), 41 (74), 85 (40), 43 (55)...]	13.60*	1964.2	[0.14]	9.93	1372.9	0.15
Geranyl acetate	10.77	1714.9	0.99	10.10	1385.3	0.99
β -Elemene	8.63*	1544.4	[1.31]	10.17	1389.7	0.16
β -Caryophyllene	8.63*	1544.4	[1.31]	10.50	1413.6	1.20
Aromadendrene	8.79*	1556.3	[0.04]	10.73	1430.8	0.03
α -Humulene	9.51	1612.8	0.06	10.95	1447.5	0.06
allo-Aromadendrene	9.22	1589.8	0.02	11.05	1454.5	0.01
(E)- β -Farnesene	9.75*	1632.4	[38.28]	11.09	1457.4	0.01
Germacrene D	9.99*	1651.4	[0.15]	11.33	1475.4	0.03
Viridiflorene	9.82*	1637.7	[0.19]	11.53	1490.6	0.05
β -Bisabolene	10.40*	1684.3	[51.27]	11.78*	1509.0	[0.03]
γ -Cadinene	10.60*	1701.3	[0.05]	11.78*	1509.0	[0.03]
δ -Cadinene	10.63	1703.2	0.06	11.91	1519.6	0.03
Spathulenol	14.62	2060.0	0.02	12.57	1571.4	0.02
Caryophyllene oxide isomer	12.92	1901.0	0.02	12.61*	1574.2	[0.08]
Caryophyllene oxide	12.99	1908.3	0.06	12.61*	1574.2	[0.08]
Unknown HEBR VI [m/z 109, 43 (95), 81 (81), 93 (76), 69 (75), 95 (74), 107 (71)... 204 (22), 220 (6)]				12.65	1577.4	0.01
Isospathulenol	15.65	2162.0	0.02	13.33	1632.2	0.02

Unknown COCI LXIII [m/z 69, 41 (95), 55 (57), 109 (46), 95 (45), 67 (34)...]				17.67	2019.4	0.01
Unknown CYFL IX [m/z 93, 69 (95), 135 (76), 107 (53), 41 (53), 109 (50)... 235 (10)...]				18.13	2065.7	0.04
Unknown COCI XXXIX [m/z 81, 137 (55), 69 (50), 95 (41), 41 (40), 59 (31)... 306? (t)]				18.32	2084.3	0.01
Unknown COCI XLII [m/z 81, 43 (94), 69 (68), 95 (55), 41 (55), 55 (46)... 293 (8), 308 (1)]	19.52	2581.8	0.02	18.67	2119.7	0.01
Unknown LICU II [m/z 69, 41 (38), 151 (36), 123 (34), 82 (24), 43 (23), 109 (21)...]				18.78	2131.4	0.01
Unknown COCI LII [m/z 69, 41 (75), 95 (53), 55 (47), 82 (40), 81 (38)...]				18.85	2137.9	0.02
Unknown COCI LIV [m/z 69, 41 (77), 95 (55), 55 (50), 82 (46), 109 (42)...]				19.00	2154.1	0.01
Total reported		98.36%			98.94%	

*: 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