

Date : 2024-06-03

CERTIFICATE OF ANALYSIS - GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 24E17-PTH01

Customer Identification : Lemon Myrtle - Australia - LP0108R

Type : Essential Oil

Source : *Backhousia citriodora*

Customer : Plant Therapy

Checked and approved by:

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

Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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

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

Date : 2024-05-27

PHYSICOCHEMICAL DATA

Refractive index : 1.4874 ± 0.0003 (20 °C)

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

Analyst : Cindy Caron B. Sc.

Date : 2024-05-23

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	tr	Aliphatic alcohol
Toluene	tr	Simple phenolic
Methyl 2-methylbutyrate	0.01	Aliphatic ester
(3Z)-Hexenol	0.02	Aliphatic alcohol
Hexanol	tr	Aliphatic alcohol
2,6-Dimethyl-1,5-heptadiene	tr	Normonoterpene
Unknown	0.01	Unknown
α -Pinene	tr	Monoterpene
6-Methyl-5-hepten-2-one	0.37	Aliphatic ketone
Dehydro-1,8-cineole	0.11	Monoterpenic ether
Myrcene	0.10	Monoterpene
Octan-3-ol	0.03	Aliphatic alcohol
α -Phellandrene	0.02	Monoterpene
(3Z)-Hexenyl acetate	0.01	Aliphatic ester
α -Terpinene	0.01	Monoterpene
<i>para</i> -Cymene	0.01	Monoterpene
1,8-Cineole	0.09	Monoterpenic ether
Limonene	0.35	Monoterpene
(Z)- β -Ocimene	0.01	Monoterpene
(E)- β -Ocimene	0.03	Monoterpene
γ -Terpinene	0.01	Monoterpene
<i>trans</i> -Linalool oxide (fur.)	0.01	Monoterpenic alcohol
Terpinolene	0.01	Monoterpene
Rosefuran	0.02	Monoterpenic ether
Linalool	0.29	Monoterpenic alcohol
Nonanal	0.02	Aliphatic aldehyde
<i>cis</i> -Chrysanthemal?	0.03	Monoterpenic aldehyde
α -Cyclocitral	0.01	Monoterpenic aldehyde
<i>trans-para</i> -Mentha-2,8-dien-1-ol	0.03	Monoterpenic alcohol
<i>cis-para</i> -Menth-2-en-1-ol	0.01	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	0.02	Monoterpenic alcohol
Isopulegol	0.03	Monoterpenic alcohol
exo-Isocitral	0.38	Monoterpenic aldehyde
<i>trans</i> -Chrysanthemal	0.01	Monoterpenic aldehyde
Citronellal	0.50	Monoterpenic aldehyde
iso-Isopulegol	0.02	Monoterpenic alcohol
Isoneral	1.00	Monoterpenic aldehyde
α -Phellandren-8-ol	0.20	Monoterpenic alcohol
Terpinen-4-ol	0.03	Monoterpenic alcohol

Unknown	0.29	Oxygenated monoterpene
Isogeranial	1.87	Monoterpenic aldehyde
<i>para</i> -Cymen-8-ol	0.02	Monoterpenic alcohol
α -Terpineol	0.08	Monoterpenic alcohol
β -Phellandren-8-ol	0.08	Monoterpenic alcohol
<i>trans</i> -Isopiperitenol	0.08	Monoterpenic alcohol
Unknown	0.20	Oxygenated monoterpene
<i>cis</i> -Isopiperitenol	0.06	Monoterpenic alcohol
Unknown	0.01	Oxygenated monoterpene
Nerol	0.59	Monoterpenic alcohol
Citronellol	0.29	Monoterpenic alcohol
Neral	39.71	Monoterpenic aldehyde
Piperitone	0.07	Monoterpenic ketone
Geraniol	0.63	Monoterpenic alcohol
Geranial	49.52	Monoterpenic aldehyde
Unknown	0.06	Oxygenated monoterpene
Unknown	0.01	Unknown
Neric acid	0.07	Monoterpenic acid
α -Terpinyl acetate	0.02	Monoterpenic ester
Unknown	0.03	Unknown
Geranic acid	0.13	Aliphatic acid
Unknown	0.06	Unknown
α -Copaene	0.05	Sesquiterpene
β -Elemene	0.08	Sesquiterpene
β -Caryophyllene	0.51	Sesquiterpene
Aromadendrene	0.01	Sesquiterpene
α -Humulene	0.01	Sesquiterpene
allo-Aromadendrene	0.02	Sesquiterpene
Bicyclogermacrene	0.07	Sesquiterpene
δ -Cadinene	0.02	Sesquiterpene
Spathulenol	0.03	Sesquiterpenic alcohol
Caryophyllene oxide	0.02	Sesquiterpenic ether
Unknown	0.02	Oxygenated sesquiterpene
Isospathulenol	0.02	Sesquiterpenic alcohol
α -Bisabolol	0.01	Sesquiterpenic alcohol
Unknown	0.09	Unknown
Unknown	0.02	Unknown
Unknown	0.03	Oxygenated diterpene
Unknown	0.03	Unknown
Unknown	0.03	Unknown
Unknown	0.02	Unknown
Consolidated total	98.86	

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

Note: no correction factor was applied

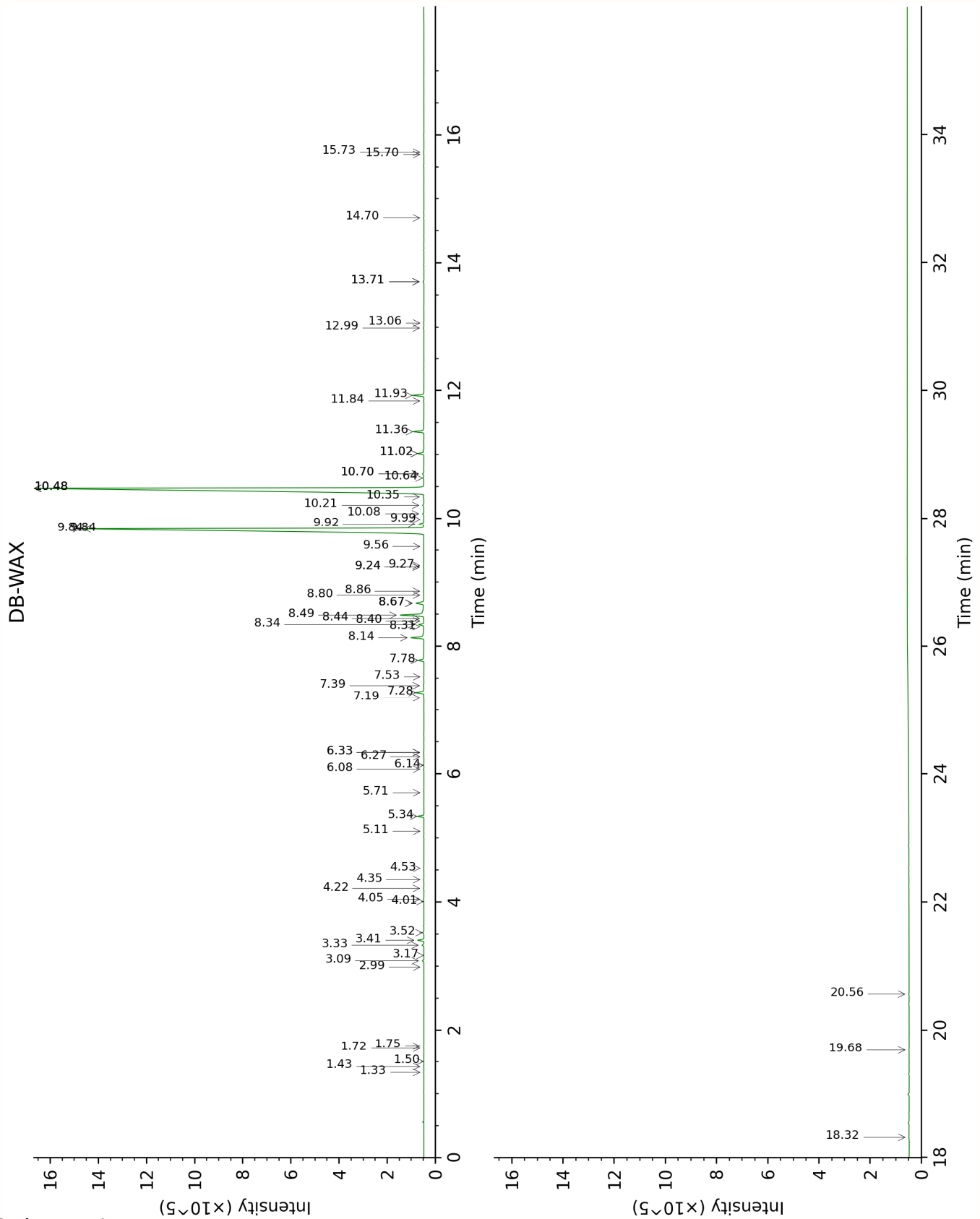
About "consolidated" data: The table above presents the breakdown of the sample volatile constituents after applying an algorithm to collapse data acquired from the multi-columns system of PhytoChemia into a single set of consolidated contents. In case of discrepancies

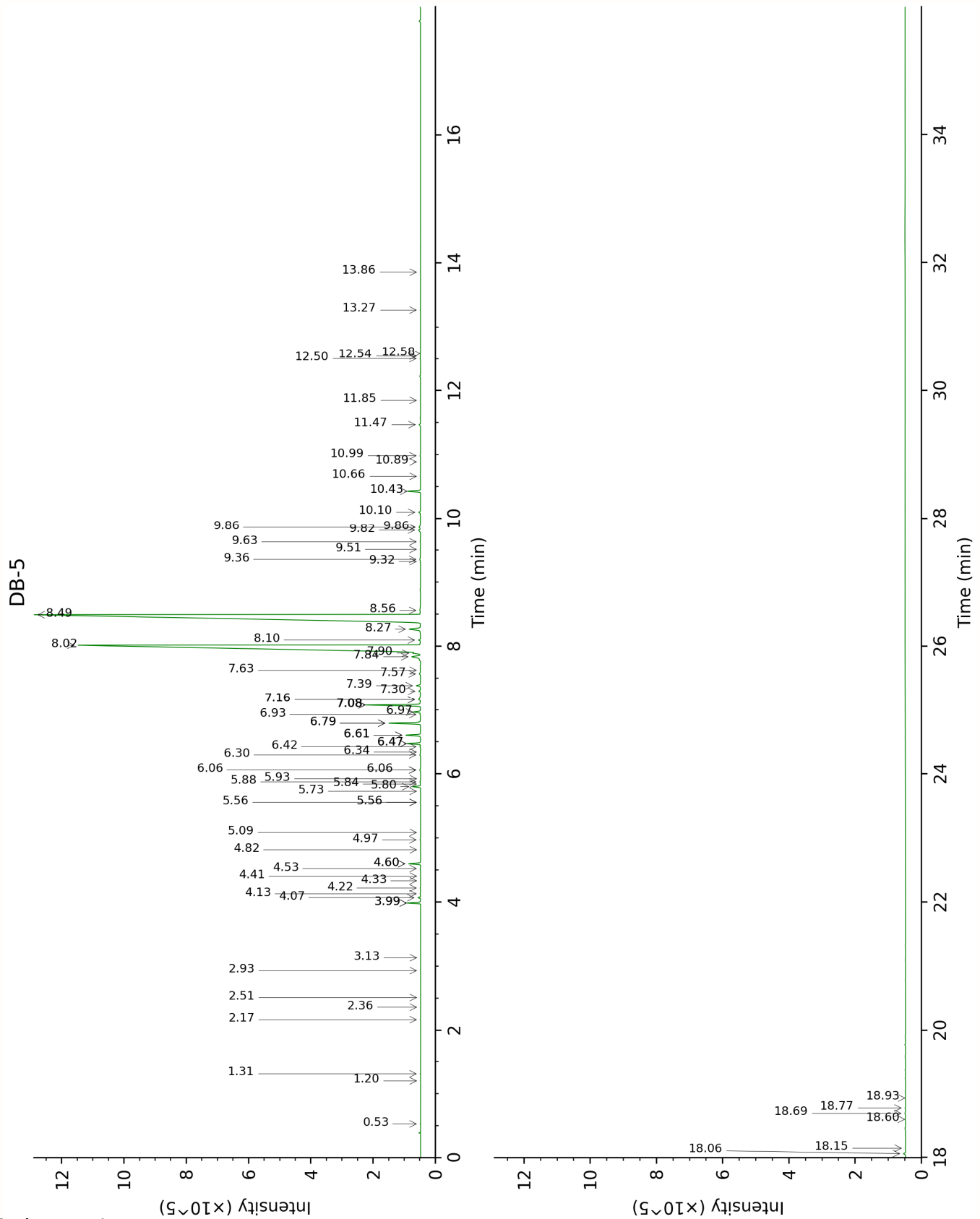
between columns, the algorithm is set to prioritize data from the most standard DB-5 column, and smallest values so as to avoid overestimating individual content. This process is semi-automatic. Advanced users are invited to consult the "Full analysis data" table after the chromatograms in this report 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		
	1.75	1015.2	tr	0.53	606.2	tr
Toluene				1.20	759.2	tr
Methyl 2-methylbutyrate	1.43	978.5	0.01	1.31	774.6	0.01
(3Z)-Hexenol	6.08	1350.0	0.02	2.17	857.9	0.02
Hexanol	5.71	1323.7	tr	2.36	874.1	tr
2,6-Dimethyl-1,5-heptadiene	1.34	964.4	tr	2.51	886.6	tr
Unknown HYPE V [m/z 67, 109 (89), 124 (85), 41 (41), 81 (35), 55 (24)...]	1.72	1011.9	tr	2.93	918.0	0.01
α -Pinene	1.50	990.8	tr	3.13	931.3	tr
6-Methyl-5-hepten-2-one	5.34	1297.3	0.37	3.99*	987.8	[0.46]
Dehydro-1,8-cineole	3.33	1151.0	0.11	3.99*	987.8	[0.46]
Myrcene	3.09	1132.6	0.09	4.07	993.3	0.10
Octan-3-ol	6.34*	1368.6	[0.03]	4.13	997.3	0.03
α -Phellandrene	2.99	1125.2	tr	4.22	1003.3	0.02
(3Z)-Hexenyl acetate	5.11	1277.9	0.01	4.33	1010.4	0.01
α -Terpinene	3.17	1139.0	tr	4.41	1015.0	0.01
<i>para</i> -Cymene	4.35	1225.5	0.02	4.53	1022.4	0.01
1,8-Cineole	3.52	1165.7	0.09	4.60*	1027.1	[0.43]
Limonene	3.41	1156.9	0.35	4.60*	1027.1	[0.43]
(Z)- β -Ocimene	4.01	1201.5	tr	4.82	1040.7	0.01
(E)- β -Ocimene	4.22	1215.9	0.03	4.97	1050.5	0.03
γ -Terpinene	4.05	1204.2	0.02	5.09	1057.7	0.01
<i>trans</i> -Linalool oxide (fur.)	7.19	1431.2	0.01	5.56*	1087.1	[0.02]
Terpinolene	4.53	1237.9	0.01	5.56*	1087.1	[0.02]
Rosefuran	6.27	1363.9	0.01	5.73	1098.0	0.02
Linalool	8.34	1517.0	0.32	5.80	1102.5	0.29
Nonanal	6.14	1354.4	0.01	5.84	1105.1	0.02
<i>cis</i> -Chrysanthemal?	6.34*	1368.6	[0.03]	5.88	1107.3	0.03
α -Cyclocitral				5.93	1110.4	0.01
<i>trans-para</i> -Mentha-2,8-dien-1-ol	9.24*	1586.1	[0.03]	6.06*	1119.1	[0.05]
<i>cis-para</i> -Menth-2-en-1-ol	8.40	1521.3	0.01	6.06*	1119.1	[0.05]

<i>cis-para</i> -Mentha-2,8-dien-1-ol	9.84*	1633.9	[39.82]	6.30	1134.1	0.04
<i>trans-para</i> -Menth-2-en-1-ol	9.26	1588.1	0.02	6.34	1137.0	0.02
Isopulegol	8.44	1524.4	0.04	6.42	1142.3	0.03
exo-Isocitral	7.78	1474.8	0.38	6.47*	1145.4	[0.51]
<i>trans</i> -Chrysanthemal	7.53	1455.8	0.01	6.47*	1145.4	[0.51]
Citronellal	7.28	1437.5	0.50	6.60*	1153.8	[0.55]
iso-Isopulegol	8.31	1514.5	0.02	6.60*	1153.8	[0.55]
Isoneral	8.14	1501.2	1.00	6.79*	1165.8	[1.20]
α -Phellandren-8-ol	10.48*	1685.4	[49.98]	6.79*	1165.8	[1.20]
Terpinen-4-ol	8.86	1557.1	0.05	6.93	1174.5	0.03
Unknown CYFL V [m/z 84, 83 (74), 137 (56), 41 (47), 93 (43), 108 (40)... 152 (2)]	9.92	1640.3	0.31	6.97	1177.0	0.29
Isogeranial	8.49	1528.3	1.87	7.08*	1184.1	[2.04]
<i>para</i> -Cymen-8-ol	11.84	1800.0	0.02	7.08*	1184.1	[2.04]
α -Terpineol	10.08	1653.4	0.08	7.16*	1189.5	[0.16]
β -Phellandren-8-ol	11.02*	1730.7	[0.35]	7.16*	1189.5	[0.16]
<i>trans</i> -Isopiperitenol	10.70*	1704.1	[0.10]	7.30	1198.3	0.08
Unknown CYFL VI [m/z 84, 41 (83), 83 (79), 91 (76), 93 (67), 119 (64), 137 (63), 109 (54), 108 (54)... 152 (4)]	10.48*	1685.4	[49.98]	7.39	1203.9	0.20
<i>cis</i> -Isopiperitenol	10.64	1698.7	0.06	7.57	1216.2	0.06
Unknown COCI IX [m/z 69, 55 (65), 43 (47), 41 (44), 83 (42), 75 (37), 125 (36)... 154 (1)]				7.63	1220.0	0.01
Nerol	11.36	1759.5	0.63	7.84	1234.1	0.59
Citronellol	11.02*	1730.7	[0.35]	7.90	1238.0	0.29
Neral	9.84*	1633.9	[39.82]	8.02	1246.2	39.71
Piperitone	10.21	1664.0	0.08	8.10	1251.6	0.07
Geraniol	11.93	1807.7	0.68	8.27	1263.0	0.63
Geranial	10.48*	1685.4	[49.98]	8.50	1278.0	49.52
Unknown CYFL VII [m/z 43, 69 (77), 41 (70), 109 (54)... 152				8.56	1282.6	0.06

(6)]						
Unknown CYFL VIII [m/z 82, 59 (44), 41 (43), 95 (31), 43 (29), 81 (24)...]	12.99	1901.0	0.04	9.32	1335.2	0.01
Neric acid				9.36	1337.6	0.07
α -Terpinyl acetate	9.99	1646.4	0.01	9.51	1348.6	0.02
Unknown LICU I [m/z 110, 95 (98), 109 (40), 43 (35), 111 (32)... 153 (13)...]	13.71*	1966.5	[0.06]	9.63	1356.9	0.03
Geranic acid	18.32	2430.7	0.12	9.82	1369.9	0.13
Unknown ZIOF XI [m/z 81, 59 (94), 41 (74), 85 (40), 43 (55)...]	13.71*	1966.5	[0.06]	9.86*	1373.2	[0.11]
α -Copaene	7.39	1445.6	0.05	9.86*	1373.2	[0.11]
β -Elemene	8.67*	1542.6	[0.64]	10.10	1390.2	0.08
β -Caryophyllene	8.67*	1542.6	[0.64]	10.43	1413.9	0.51
Aromadendrene	8.80	1552.4	0.02	10.66	1431.3	0.01
α -Humulene	9.56	1611.7	0.01	10.89	1448.0	0.01
allo- Aromadendrene	9.24*	1586.1	[0.03]	10.99	1455.2	0.02
Bicyclogermacrene	10.34	1674.7	0.05	11.47	1491.3	0.07
δ -Cadinene	10.70*	1704.1	[0.10]	11.85	1520.4	0.02
Spathulenol	14.70	2059.7	0.02	12.50	1571.7	0.03
Caryophyllene oxide	13.06	1908.1	0.02	12.54	1574.9	0.02
Unknown HEBR VI [m/z 109, 43 (95), 81 (81), 93 (76), 69 (75), 95 (74), 107 (71)... 204 (22), 220 (6)]				12.58	1577.8	0.02
Isospathulenol	15.73	2160.6	0.02	13.27	1633.1	0.02
α -Bisabolol	15.70	2157.0	0.01	13.86	1681.8	0.01
Unknown CYFL IX [m/z 93, 69 (95), 135 (76), 107 (53), 41 (53), 109 (50)... 235 (10)...]				18.06	2067.1	0.09
Unknown COCI XXXVI [m/z 69, 81 (56), 83 (52), 41				18.15	2075.6	0.02

(39), 95 (42), 55 (27)...						
Unknown COCI XLII [m/z 81, 43 (94), 69 (68), 95 (55), 41 (55), 55 (46)... 293 (8), 308 (1)]	19.68	2584.2	0.02	18.60	2121.2	0.03
Unknown LICU II [m/z 69, 41 (38), 151 (36), 123 (34), 82 (24), 43 (23), 109 (21)...	20.56	2687.5	0.03	18.69	2130.7	0.03
Unknown COCI LII [m/z 69, 41 (75), 95 (53), 55 (47), 82 (40), 81 (38)...				18.78	2139.5	0.03
Unknown COCI LIV [m/z 69, 41 (77), 95 (55), 55 (50), 82 (46), 109 (42)...				18.93	2155.6	0.02
Total reported	98.72%			99.11%		

*: 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