

Date : 2026-03-02

CERTIFICATE OF ANALYSIS - GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 26A06-PTH06

Customer Identification : Lime SD - Mexico - LL0114R

Type : Essential Oil

Source : *Citrus aurantifolia* ct. Distilled

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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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 2026-01-08 to make a correction 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 : 2026-01-06

PHYSICOCHEMICAL DATA

Refractive index : 1.4759 ± 0.0003 (20 °C)

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

Analyst : Cindy Caron B. Sc.

Date : 2026-01-06

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
Ethanol	0.03	Aliphatic alcohol
Toluene	0.02	Simple phenolic
4,5-Dihydrotoluene	0.13	Alkene
Octane	0.01	Alkane
Heptanal	0.03	Aliphatic aldehyde
Tricyclene	0.02	Monoterpene
α -Thujene	0.02	Monoterpene
α -Pinene	1.40	Monoterpene
α -Fenchene	0.14	Monoterpene
Camphene	0.38	Monoterpene
Unknown	0.05	Monoterpene
Geranic oxide	0.04	Monoterpenic ether
β -Pinene	1.41	Monoterpene
Sabinene	0.01	Monoterpene
6-Methyl-5-hepten-2-one	0.03	Aliphatic ketone
Myrcene	0.97	Monoterpene
Pseudolimonene	0.03	Monoterpene
Octanal	0.43	Aliphatic aldehyde
α -Phellandrene	0.22	Monoterpene
Δ^3 -Carene	0.05	Monoterpene
α -Terpinene	2.45	Monoterpene
<i>para</i> -Cymene	2.91	Monoterpene
1,8-Cineole	0.60	Monoterpenic ether
Limonene	54.10	Monoterpene
β -Phellandrene	0.20	Monoterpene
(<i>Z</i>)- β -Ocimene	0.02	Monoterpene
(<i>E?</i>)-Citroxide	0.05	Monoterpenic ether
(<i>E</i>)- β -Ocimene	0.14	Monoterpene
γ -Terpinene	11.66	Monoterpene
<i>cis</i> -Linalool oxide (fur.)	0.01	Monoterpenic alcohol
<i>cis</i> -Sabinene hydrate	0.10	Monoterpenic alcohol
Octanol	0.01	Aliphatic alcohol
<i>trans</i> -Linalool oxide (fur.)	0.01	Monoterpenic alcohol
<i>para</i> -Cymenene	0.19	Monoterpene
Terpinolene	7.30	Monoterpene
Linalool	0.04	Monoterpenic alcohol
Nonanal	0.01	Aliphatic aldehyde
endo-Fenchol	0.24	Monoterpenic alcohol
<i>trans-para</i> -Mentha-2,8-dien-1-ol	0.01	Monoterpenic alcohol
<i>cis</i> -Limonene oxide	0.02	Monoterpenic ether

1-Terpineol	0.34	Monoterpenic alcohol
<i>trans</i> -Limonene oxide	0.01	Monoterpenic ether
Camphor	0.02	Monoterpenic ketone
<i>cis</i> - β -Terpineol	0.34	Monoterpenic alcohol
Epoxyterpinolene	0.05	Monoterpenic ether
Isoborneol	0.04	Monoterpenic alcohol
Borneol	0.32	Monoterpenic alcohol
<i>trans</i> - β -Terpineol	0.17	Monoterpenic alcohol
Isoneral	0.01	Monoterpenic aldehyde
Terpinen-4-ol	0.37	Monoterpenic alcohol
<i>para</i> -Cymen-8-ol	0.14	Monoterpenic alcohol
α -Terpineol	9.50	Monoterpenic alcohol
γ -Terpineol	0.84	Monoterpenic alcohol
Decanal	0.02	Aliphatic aldehyde
<i>trans</i> -Carveol	0.02	Monoterpenic alcohol
Nerol	0.01	Monoterpenic alcohol
2,3-Epoxygeranial?	0.04	Monoterpenic aldehyde
Neral	0.34	Monoterpenic aldehyde
<i>trans</i> -Ascaridole glycol	0.03	Monoterpenic alcohol
Geranial	0.56	Monoterpenic aldehyde
Unknown	0.03	Oxygenated monoterpene
<i>cis</i> -Ascaridole glycol	0.03	Monoterpenic alcohol
Unknown	0.03	Unknown
δ -Elemene	0.02	Sesquiterpene
Citronellyl acetate	0.02	Monoterpenic ester
Neryl acetate	0.06	Monoterpenic ester
Geranyl acetate	0.02	Monoterpenic ester
β -Elemene	0.02	Sesquiterpene
Dodecanal	0.01	Aliphatic aldehyde
<i>cis</i> - α -Bergamotene	0.01	Sesquiterpene
β -Caryophyllene	tr	Sesquiterpene
γ -Elemene	0.01	Sesquiterpene
<i>trans</i> - α -Bergamotene	0.11	Sesquiterpene
α -Humulene	0.01	Sesquiterpene
β -Santalene	0.01	Sesquiterpene
(<i>E</i>)- β -Farnesene	0.01	Sesquiterpene
Germacrene D	0.01	Sesquiterpene
β -Selinene	0.01	Sesquiterpene
α -Selinene	0.03	Sesquiterpene
β -Bisabolene	0.14	Sesquiterpene
γ -Cadinene	0.01	Sesquiterpene
(3 <i>E</i> ,6 <i>E</i>)- α -Farnesene	0.05	Sesquiterpene
Selina-4,7(11)-diene	0.03	Sesquiterpene
Consolidated total	99.33	

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

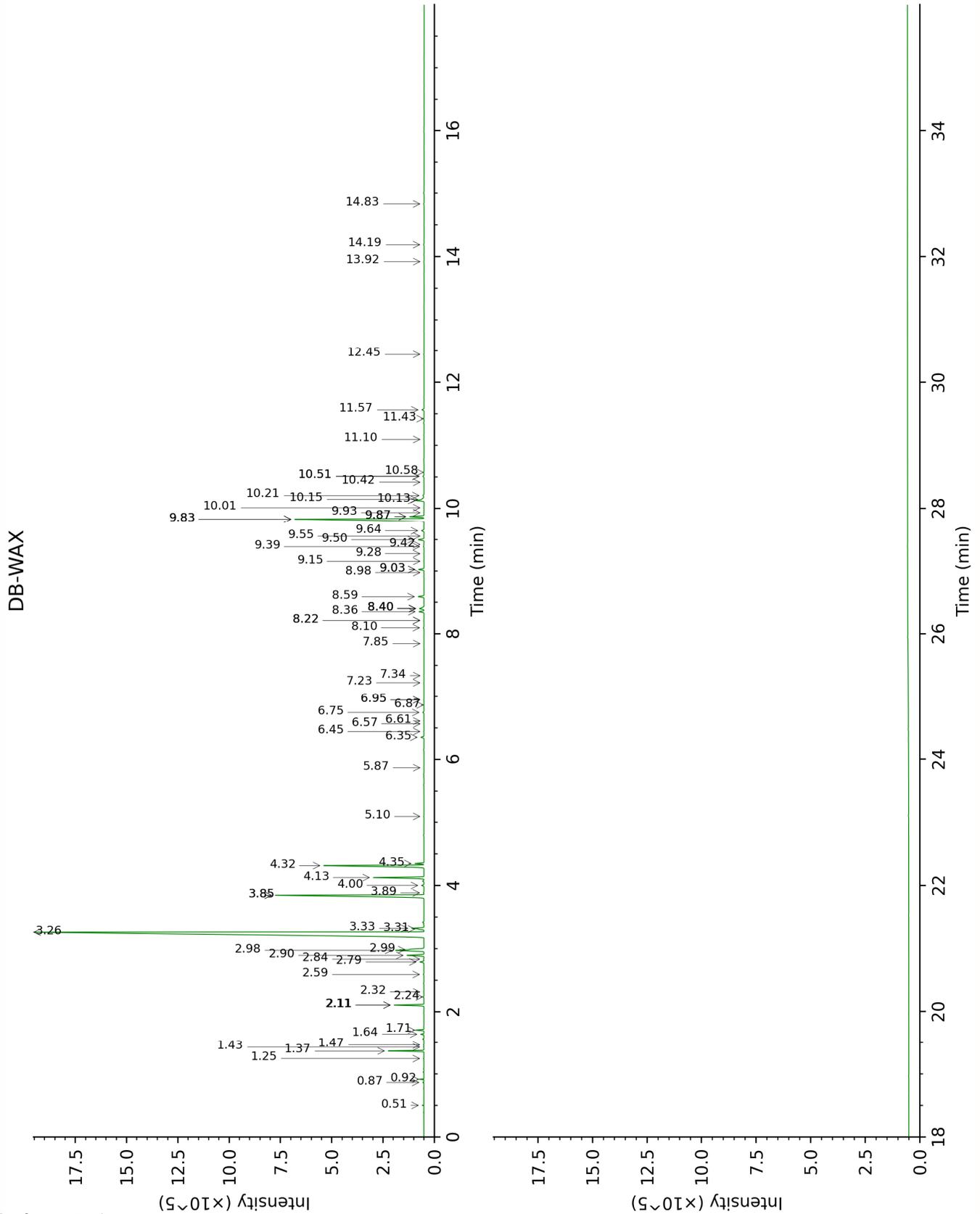
Note: no correction factor was applied

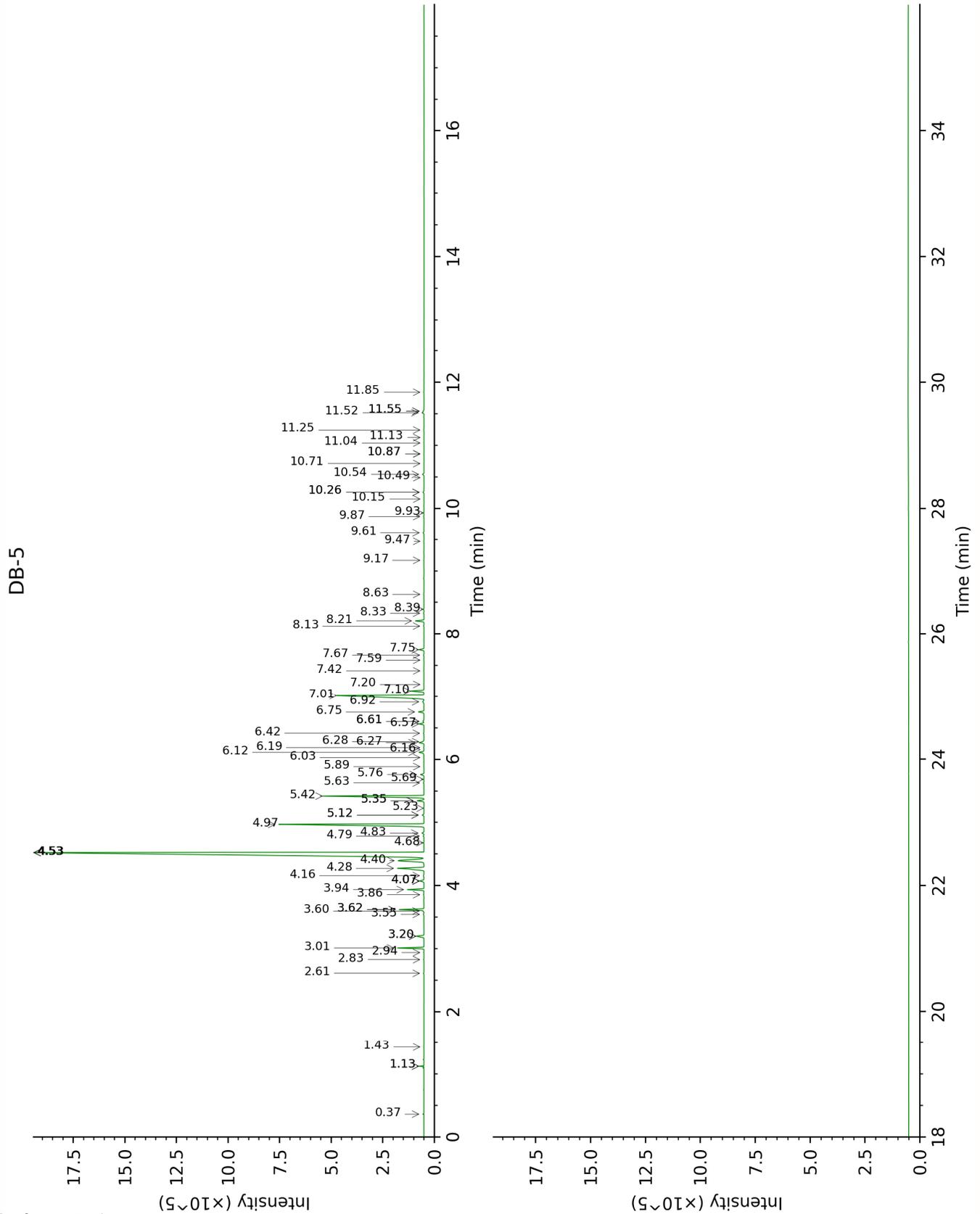
About "consolidated" data: The table above presents the breakdown of the sample volatile constituents after applying an algorithm to collapse data acquired from the multi-columns system of PhytoChemia into a single set of consolidated contents. In case of discrepancies between columns, the algorithm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

Ethanol	Column DB-WAX			Column DB-5		
	0.87	908.7	0.03	0.37	506.3	0.03
Toluene	1.47	1002.3	0.02	1.13*	759.3	[0.15]
4,5-Dihydrotoluene	0.92	917.0	0.13	1.13*	759.3	[0.15]
Octane	0.50	783.3	0.03	1.43	804.0	0.01
Heptanal	2.99*†	1141.5	[0.66]	2.61	904.2	0.03
Tricyclene	1.25	970.6	0.02	2.83	918.8	0.02
α-Thujene	1.43	998.9	0.01	2.94	926.3	0.02
α-Pinene	1.37	990.5	1.40	3.01	931.2	1.40
α-Fenchene	1.64	1019.8	0.14	3.20*	943.7	[0.58]
Camphene	1.71	1026.3	0.38	3.20*	943.7	[0.58]
Unknown CIAU I [m/z 93, 91 (60), 121 (55), 136 (42), 79 (40)]	2.11*	1065.8	[1.44]	3.55	966.9	0.05
Geranic oxide	2.24	1078.7	0.05	3.60	970.6	0.04
β-Pinene	2.11*	1065.8	[1.44]	3.62*	972.0	[1.43]
Sabinene	2.32	1086.6	0.01	3.62*	972.0	[1.43]
6-Methyl-5-hepten-2-one	5.10	1298.6	0.01	3.86	987.9	0.03
Myrcene	2.90	1134.3	0.96	3.94	993.3	0.97
Pseudolimonene	2.84	1129.7	0.03	4.07*	1002.5	[0.32]
Octanal	4.35	1245.7	0.43	4.07*	1002.5	[0.32]
α-Phellandrene	2.79	1126.1	0.22	4.07*	1002.5	[0.32]
Δ ³ -Carene	2.59	1110.5	0.04	4.16	1008.0	0.05
α-Terpinene	2.98*†	1140.5	[1.80]	4.28	1015.4	2.45
para-Cymene	4.13	1229.3	2.86	4.40	1023.0	2.91
1,8-Cineole	3.32	1168.2	0.60	4.52*	1031.2	[55.11]
Limonene	3.26	1163.4	54.10	4.52*	1031.2	[55.11]
β-Phellandrene	3.31	1167.3	0.20	4.52*	1031.2	[55.11]
(Z)-β-Ocimene	3.85*	1208.7	[11.70]	4.68	1041.0	0.02
(E?)-Citroside	3.89	1211.5	0.03	4.79	1047.9	0.05
(E)-β-Ocimene	4.00	1220.2	0.13	4.83	1050.8	0.14
γ-Terpinene	3.85*	1208.7	[11.70]	4.97	1059.6	11.66
cis-Linalool oxide (fur.)	6.57	1403.4	0.01	5.12*	1069.0	[0.11]
cis-Sabinene hydrate	6.95*	1431.7	[0.02]	5.12*	1069.0	[0.11]
Octanol	8.22*	1526.4	[0.03]	5.23	1076.0	0.01
trans-Linalool oxide (fur.)	6.87	1425.6	0.01	5.35*	1083.5	[0.45]
para-Cymenene	6.35	1388.0	0.19	5.35*	1083.5	[0.45]
Terpinolene	4.32	1243.3	7.07	5.42	1088.2	7.30

Linalool	8.10	1517.4	0.04	5.63	1101.5	0.04
Nonanal	5.87	1353.6	0.01	5.69	1105.1	0.01
endo-Fenchol	8.36†	1537.0	0.31	5.76	1110.1	0.24
<i>trans-para-</i> Mentha-2,8-dien- 1-ol	8.98	1584.8	0.01	5.89	1118.2	0.01
<i>cis</i> -Limonene oxide	6.44	1394.6	0.02	6.03	1127.5	0.02
1-Terpineol	8.40*†	1540.9	[0.39]	6.12	1132.9	0.34
<i>trans</i> -Limonene oxide	6.61	1406.8	0.01	6.16	1135.6	0.01
Camphor	7.23	1452.1	0.01	6.19	1137.7	0.02
<i>cis</i> -β-Terpineol	9.02*	1588.6	[0.32]	6.27	1142.9	0.34
Epoxyterpinolene	6.75	1416.8	0.07	6.28	1143.9	0.05
Isoborneol	9.39	1617.5	0.03	6.42	1152.5	0.04
Borneol	9.83*	1653.1	[9.70]	6.56	1162.2	0.32
<i>trans</i> -β-Terpineol	9.64	1637.9	0.17	6.60*	1164.8	[0.09]
Isoneral	7.85	1498.1	0.01	6.60*	1164.8	[0.09]
Terpinen-4-ol	8.59	1555.4	0.35	6.76	1174.6	0.37
<i>para</i> -Cymen-8-ol	11.57	1798.0	0.14	6.92	1185.1	0.14
α-Terpineol	9.83*	1653.1	[9.70]	7.02	1191.5	9.50
γ-Terpineol	9.87*	1656.5	[0.84]	7.10	1196.8	0.84
Decanal	7.34	1460.5	0.01	7.20	1203.6	0.02
<i>trans</i> -Carveol	11.43	1785.9	0.01	7.42	1218.3	0.02
Nerol	11.10	1758.2	0.02	7.59	1229.9	0.01
2,3- Epoxygeranial?				7.67	1235.3	0.04
Neral	9.50	1626.4	0.37	7.75	1241.3	0.34
<i>trans</i> -Ascaridole glycol	14.19	2037.1	0.03	8.13	1266.8	0.03
Geranial	10.13	1677.4	0.57	8.21	1272.5	0.56
Unknown CIAU V [m/z 95, 67 (45), 41 (42), 110 (42), 43 (41), 59 (36)]	12.45	1875.8	0.02	8.33	1280.8	0.03
<i>cis</i> -Ascaridole glycol	14.83	2099.3	0.02	8.39	1285.1	0.03
Unknown CICA VI [m/z 112, 97 (93), 83 (60), 43 (46), 41 (20), 69 (19)...]	13.92	2011.4	0.02	8.63	1301.4	0.03
δ-Elemene	6.95*	1431.7	[0.02]	9.17	1336.2	0.02
Citronellyl acetate	9.42	1620.3	0.02	9.47	1357.7	0.02
Neryl acetate	10.21	1683.6	0.09	9.61	1367.3	0.06

Geranyl acetate	10.58	1714.2	0.03	9.87	1386.3	0.02
β -Elemene	8.40*†	1540.9	[0.39]	9.93	1390.4	0.02
Dodecanal	10.01	1667.9	0.01	10.15	1406.1	0.01
<i>cis</i> - α -Bergamotene	8.22*	1526.4	[0.03]	10.26*	1414.1	[0.07]
β -Caryophyllene	8.40*†	1540.9	[0.39]	10.26*	1414.1	[0.07]
γ -Elemene	9.02*	1588.6	[0.32]	10.49	1431.5	0.01
<i>trans</i> - α -Bergamotene	8.40*†	1540.9	[0.39]	10.54	1435.4	0.11
α -Humulene	9.28	1608.4	0.02	10.71	1448.2	0.01
β -Santalene	9.16	1598.8	0.01	10.87*	1459.8	[0.02]
(<i>E</i>)- β -Farnesene	9.56	1631.0	0.01	10.87*	1459.8	[0.02]
Germacrene D	9.83*	1653.1	[9.70]	11.04	1472.7	0.01
β -Selinene	9.87*	1656.5	[0.84]	11.13	1479.2	0.01
α -Selinene	9.93	1661.6	0.02	11.25	1488.1	0.03
β -Bisabolene	10.15	1678.6	0.16	11.52	1508.9	0.14
γ -Cadinene	10.42	1700.9	0.01	11.55*	1510.8	[0.06]
(3 <i>E</i> ,6 <i>E</i>)- α -Farnesene	10.51*	1708.9	[0.08]	11.55*	1510.8	[0.06]
Selina-4,7(11)-diene	10.51*	1708.9	[0.08]	11.85	1534.5	0.03
Total reported		98.76%			99.45%	

*: 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