Date : 2025-02-04

Certificate of Analysis - GC Profiling

Sample Identification

Internal code : 25A21-PTH01
Customer Identification : Coriander - Russia - CK0112R
Type : Essential Oil
Source : *Coriandrum sativum*
Customer : Plant Therapy

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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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

Méthode certifiée ISO 17025:2017 Certified method

Laboratoire PhytoChemia

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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 : Sylvain Mercier, M. Sc., Chimiste 2014-005
Date : 2025-01-28

Physicochemical data

Refractive index : 1.4644 ± 0.0003 (20 °C)
Method : PC-MAT-016 - Measure of the refractive index of a liquid.
Analyst : Cindy Caron B. Sc.
Date : 2025-01-21

Conclusion

No adulterant, contaminant or diluent has been detected using this method.

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Analysis Summary - Consolidated Contents

New readers of similar reports are encouraged to read table footnotes at least once.

Identification	%	Class
Ethanol	0.01	Aliphatic alcohol
Tricyclene	0.02	Monoterpene
α-Thujene	0.05	Monoterpene
α-Pinene	5.69	Monoterpene
Camphene	0.51	Monoterpene
α-Fenchene	tr	Monoterpene
Thuja-2,4(10)-diene	tr	Monoterpene
Sabinene	0.12	Monoterpene
β-Pinene	0.22	Monoterpene
Myrcene	0.99	Monoterpene
6-Methyl-5-hepten-2-ol	0.04	Aliphatic alcohol
Pseudolimonene	0.05	Monoterpene
α-Phellandrene	0.05	Monoterpene
Δ3-Carene	0.02	Monoterpene
α-Terpinene	0.04	Monoterpene
para-Cymene	1.13	Monoterpene
1,8-Cineole	0.28	Monoterpenic ether
β-Phellandrene	0.09	Monoterpene
Limonene	2.96	Monoterpene
(*Z*)-β-Ocimene	0.07	Monoterpene
(*E*)-β-Ocimene	0.07	Monoterpene
γ-Terpinene	5.52	Monoterpene
cis-Sabinene hydrate	0.03	Monoterpenic alcohol
cis-Linalool oxide (fur.)	0.17	Monoterpenic alcohol
Terpinolene	0.27	Monoterpene
para-Cymenene	0.01	Monoterpene
trans-Linalool oxide (fur.)	0.15	Monoterpenic alcohol
2-Hexylfuran	0.04	Furan
Linalool	68.82	Monoterpenic alcohol
α-Campholenal	tr	Monoterpenic aldehyde
trans-para-Menth-2-en-1-ol	0.02	Monoterpenic alcohol
Camphor	4.90	Monoterpenic ketone
Isopulegol	0.03	Monoterpenic alcohol
Epoxyterpinolene	0.02	Monoterpenic ether
Citronellal	0.01	Monoterpenic aldehyde
Borneol	0.09	Monoterpenic alcohol
cis-Linalool oxide (pyr.)	0.02	Monoterpenic alcohol
Terpinen-4-ol	0.10	Monoterpenic alcohol
para-Cymen-8-ol	0.02	Monoterpenic alcohol
Myrtenal	0.01	Monoterpenic aldehyde

α-Terpineol	1.30	Monoterpenic alcohol
Myrtenol	0.08	Monoterpenic alcohol
(4*E*)-Decenal	0.01	Aliphatic aldehyde
Verbenone	0.03	Monoterpenic ketone
Octyl acetate	0.01	Aliphatic ester
Unknown	0.01	Unknown
Nerol	0.03	Monoterpenic alcohol
Citronellol	0.03	Monoterpenic alcohol
Neral	0.02	Monoterpenic aldehyde
Geraniol	2.02	Monoterpenic alcohol
Geranial	0.05	Monoterpenic aldehyde
Decanol	0.03	Aliphatic alcohol
Safrole	0.06	Phenylpropanoid
Myrtenyl acetate	0.05	Monoterpenic ester
Citronellyl acetate	0.01	Monoterpenic ester
Neryl acetate	0.03	Monoterpenic ester
trans-Myrtanyl acetate	0.02	Monoterpenic ester
Geranyl acetate	2.15	Monoterpenic ester
β-Cubebene	tr	Sesquiterpene
β-Caryophyllene	0.31	Sesquiterpene
α-Humulene	0.16	Sesquiterpene
Germacrene D	0.09	Sesquiterpene
Viridiflorene	0.01	Sesquiterpene
Bicyclogermacrene	0.10	Sesquiterpene
γ-Cadinene	0.01	Sesquiterpene
δ-Cadinene	0.02	Sesquiterpene
Germacrene B	0.03	Sesquiterpene
(*E*)-Nerolidol	0.06	Sesquiterpenic alcohol
Spathulenol	0.03	Sesquiterpenic alcohol
Caryophyllene oxide	0.03	Sesquiterpenic ether
Humulene epoxide II	0.01	Sesquiterpenic ether
Unknown	0.02	Oxygenated sesquiterpene
meta-Camphorene	0.02	Diterpene
para-Camphorene	0.01	Diterpene
Consolidated total	**99.48**	

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.

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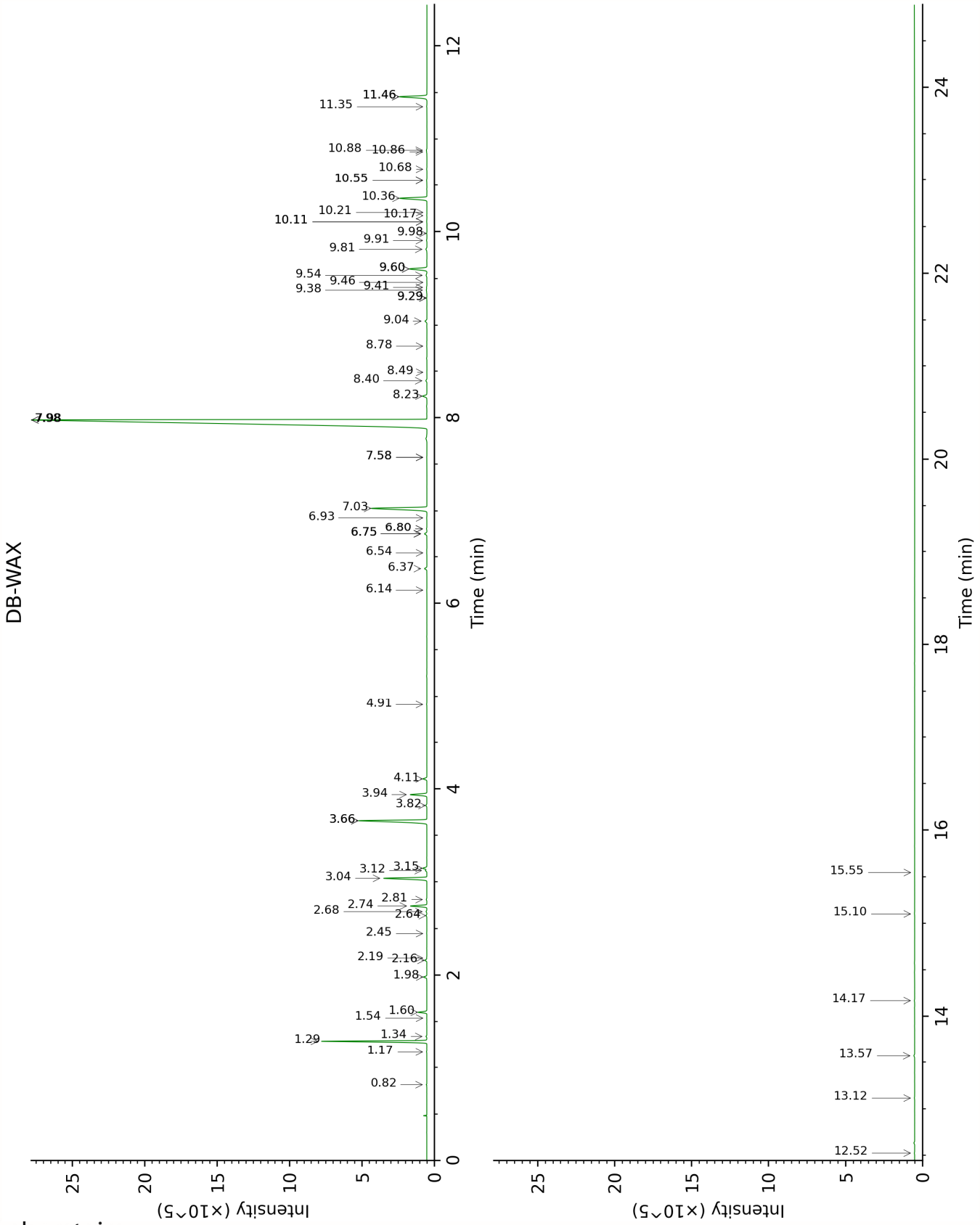
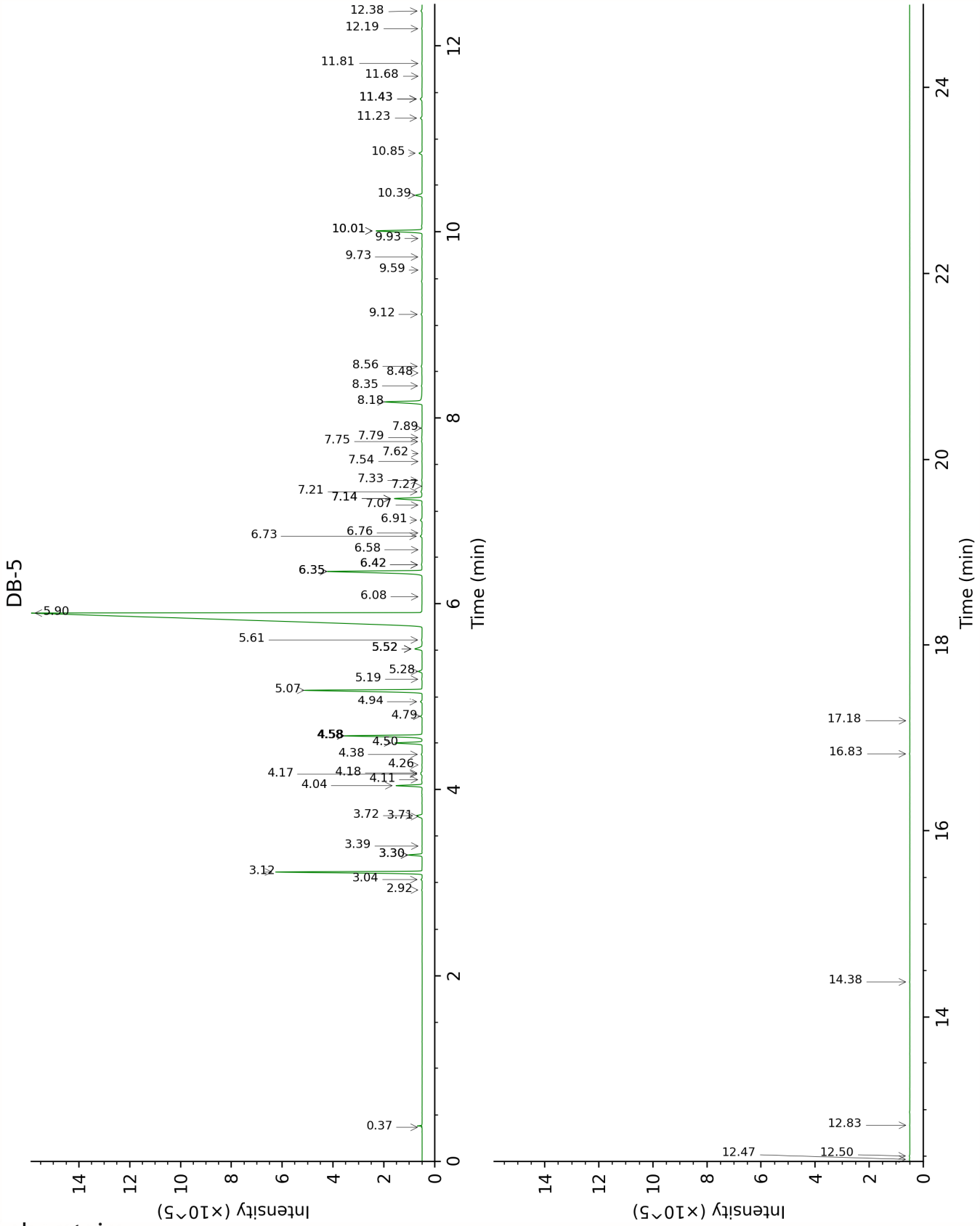

DB-WAX
Time (min)
Intensity (×10^5)
11.46
11.35
10.88
10.86
10.68
10.55
10.36
10.21
10.17
10.11
9.98
9.91
9.81
9.60
9.54
9.46
9.41
9.38
9.29
9.04
8.78
8.49
8.40
8.23
7.98
7.58
7.03
6.93
6.80
6.75
6.54
6.37
6.14
4.91
4.11
3.94
3.82
3.66
3.15
3.12
3.04
2.81
2.74
2.68
2.64
2.45
2.19
2.16
1.98
1.60
1.54
1.34
1.29
1.17
0.82
15.55
15.10
14.17
13.57
13.12
12.52


DB-5
12.38
12.19
11.81
11.68
11.43
11.23
10.85
10.39
10.01
9.93
9.73
9.59
9.12
8.56
8.48
8.35
8.18
7.89
7.75
7.79
7.62
7.54
7.33
7.27
7.21
7.14
7.07
6.91
6.73
6.76
6.58
6.42
6.35
6.08
5.90
5.61
5.52
5.28
5.19
5.07
4.94
4.79
4.58
4.50
4.38
4.26
4.17
4.18
4.11
4.04
3.72
3.71
3.39
3.30
3.12
3.04
2.92
0.37
Time (min)
Intensity (×10^5)
17.18
16.83
14.38
12.83
12.47
12.50
Time (min)
Intensity (×10^5)

FULL ANALYSIS DATA

	Column DB-WAX			Column DB-5		
Ethanol	0.82	909.2	0.02	0.37	499.3	0.01
Tricyclene	1.17	970.1	0.02	2.92	918.8	0.02
α-Thujene	1.34	999.5	0.04	3.04	926.3	0.05
α-Pinene	1.29	991.0	5.72	3.12	931.6	5.69
Camphene	1.60	1026.0	0.51	3.30*	943.8	[0.51]
α-Fenchene	1.54	1019.6	tr	3.30*	943.8	[0.51]
Thuja-2,4(10)-diene	2.18	1085.6	0.01	3.39	950.1	tr
Sabinene	2.16	1083.0	0.12	3.71*†	971.2	[0.11]
β-Pinene	1.98	1064.7	0.22	3.72*†	971.8	[0.22]
Myrcene	2.74	1133.2	1.00	4.04	993.2	0.99
6-Methyl-5-hepten-2-ol	6.75*	1432.6	[0.18]	4.11	997.5	0.04
Pseudolimonene	2.68	1128.4	0.05	4.17*†	1001.4	[0.05]
α-Phellandrene	2.64	1125.0	0.05	4.18*†	1002.2	[0.05]
Δ3-Carene	2.45	1109.6	0.01	4.26	1007.8	0.02
α-Terpinene	2.81	1138.8	0.04	4.38	1014.8	0.04
para-Cymene	3.94	1226.8	1.14	4.50	1022.5	1.13
1,8-Cineole	3.15	1165.6	0.28	4.58*	1027.3	[3.32]
β-Phellandrene	3.12	1163.6	0.09	4.58*	1027.3	[3.32]
Limonene	3.04	1157.0	2.96	4.58*	1027.3	[3.32]
(*Z*)-β-Ocimene	3.66*	1206.1	[5.60]	4.79	1040.5	0.07
(*E*)-β-Ocimene	3.82	1218.1	0.07	4.94	1050.4	0.07
γ-Terpinene	3.66*	1206.1	[5.60]	5.07	1058.5	5.52
cis-Sabinene hydrate	6.75*	1432.6	[0.18]	5.19	1065.9	0.03
cis-Linalool oxide (fur.)	6.37	1404.9	0.17	5.28	1071.2	0.17
Terpinolene	4.11	1239.3	0.27	5.52*	1086.4	[0.43]
para-Cymenene	6.14	1388.3	0.01	5.52*	1086.4	[0.43]
trans-Linalool oxide (fur.)	6.75*	1432.6	[0.18]	5.52*	1086.4	[0.43]
2-Hexylfuran	4.91	1298.6	0.02	5.61	1092.4	0.04
Linalool	7.98*	1524.8	[68.55]	5.90	1110.6	68.82
α-Campholenal	6.80*	1436.5	[0.03]	6.08	1121.8	tr
trans-para-Menth-2-en-1-ol	8.78	1586.8	0.02	6.35*	1139.2	[5.00]
Camphor	7.03	1453.4	4.90	6.35*	1139.2	[5.00]
Isopulegol	7.98*	1524.8	[68.55]	6.42*	1143.7	[0.05]
Epoxyterpinolene	6.54	1417.4	0.02	6.42*	1143.7	[0.05]
Citronellal	6.80*	1436.5	[0.03]	6.58	1154.1	0.01
Borneol	9.60*	1653.1	[1.39]	6.73	1163.3	0.09
cis-Linalool oxide	10.11*	1693.9	[0.03]	6.76	1165.6	0.02

(pyr.)						
Terpinen-4-ol	8.40	1557.4	0.09	6.91	1174.9	0.10
para-Cymen-8-ol	11.35	1799.2	0.03	7.07	1185.2	0.02
Myrtenal	8.49	1564.4	0.01	7.14*	1189.6	[1.31]
α-Terpineol	9.60*	1653.1	[1.39]	7.14*	1189.6	[1.31]
Myrtenol	10.68	1742.1	0.02	7.21	1194.3	0.08
(4*E*)-Decenal	7.58*	1494.0	[0.02]	7.27	1198.2	0.01
Verbenone	9.41	1637.1	0.04	7.33	1202.2	0.03
Octyl acetate	6.93	1445.8	0.02	7.54	1215.6	0.01
Unknown ARAB I [m/z 69, 41 (55), 111 (25), 93 (14), 109 (14)...]				7.62	1221.3	0.01
Nerol	10.88	1759.4	0.04	7.75	1229.9	0.03
Citronellol	10.55*	1731.4	[0.04]	7.79	1232.8	0.03
Neral	9.29*	1627.9	[0.03]	7.89	1239.6	0.02
Geraniol	11.46*	1808.7	[2.12]	8.18	1258.5	2.02
Geranial	9.91	1677.8	0.03	8.35	1270.0	0.05
Decanol	10.55*	1731.4	[0.04]	8.48	1279.2	0.03
Safrole	11.46*	1808.7	[2.12]	8.56	1284.0	0.06
Myrtenyl acetate	9.38	1634.7	0.05	9.12	1322.7	0.05
Citronellyl acetate	9.29*	1627.9	[0.03]	9.59	1356.1	0.01
Neryl acetate	9.98	1683.9	0.02	9.73	1366.0	0.03
trans-Myrtanyl acetate	10.11*	1693.9	[0.03]	9.93	1379.9	0.02
Geranyl acetate	10.36	1715.1	2.15	10.01*	1385.6	[2.15]
β-Cubebene	7.58*	1494.0	[0.02]	10.01*	1385.6	[2.15]
β-Caryophyllene	8.23	1544.6	0.34	10.39	1413.0	0.31
α-Humulene	9.04	1607.9	0.15	10.85	1447.2	0.16
Germacrene D	9.54	1647.6	0.09	11.23	1475.2	0.09
Viridiflorene	9.46	1641.4	0.01	11.43*	1490.5	[0.11]
Bicyclogermacrene	9.81	1670.2	0.10	11.43*	1490.5	[0.11]
γ-Cadinene	10.17	1699.4	0.02	11.68	1508.9	0.01
δ-Cadinene	10.21	1702.3	0.01	11.81	1519.7	0.02
Germacrene B	10.86	1757.9	0.02	12.19	1549.0	0.03
(*E*)-Nerolidol	13.57	2001.2	0.06	12.38	1564.0	0.06
Spathulenol	14.17	2059.2	0.03	12.47	1570.9	0.03
Caryophyllene oxide	12.52	1904.0	0.03	12.50	1573.8	0.03
Humulene epoxide II	13.12	1958.8	0.02	12.83	1599.8	0.01
Unknown CHIN XI [m/z 83, 55 (13), 84 (6), 149 (4), 68 (4)...218 (1)]				14.38	1728.5	0.02

meta-Camphorene	15.10	2151.3	0.02	16.83	1949.5	0.02
para-Camphorene	15.55	2196.0	0.01	17.18	1983.3	0.01
Total reported		99.15%			99.55%	

*: 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

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