Date : 2026-01-09

Certificate of Analysis - GC Profiling

Sample Identification

Internal code : 25L16-PTH09
Customer Identification : Cypress - Greece - CL0117R
Type : Essential Oil
Source : *Cupressus sempervirens*
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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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. 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.

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 : Jean-Christophe Fortin, M. Sc.
Date : 2026-01-08

Physicochemical data

Refractive index : 1.4709 ± 0.0003 (20 °C)
Method : PC-MAT-016 - Measure of the refractive index of a liquid.
Analyst : Cindy Caron B. Sc.
Date : 2025-12-16

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
Toluene	0.01	Simple phenolic
Cyclofenchene	0.01	Monoterpene
Bornylene	0.04	Monoterpene
Hashishene	0.02	Monoterpene
Tricyclene	0.12	Monoterpene
α-Thujene	0.52	Monoterpene
α-Pinene	53.59	Monoterpene
Camphene	0.20	Monoterpene
α-Fenchene	0.47	Monoterpene
Thuja-2,4(10)-diene	0.02	Monoterpene
3,7,7-Trimethylcyclohepta-1,3,5-triene	0.10	Monoterpene
β-Pinene	1.71	Monoterpene
Sabinene	0.46	Monoterpene
Myrcene	1.45	Monoterpene
2-Carene	0.03	Monoterpene
Menthatriene isomer I	0.02	Monoterpene
α-Phellandrene	0.09	Monoterpene
Pseudolimonene	0.02	Monoterpene
Δ3-Carene	24.42	Monoterpene
α-Terpinene	0.38	Monoterpene
meta-Cymene	0.04	Monoterpene
para-Cymene	0.33	Monoterpene
Sylvestrene	0.14	Monoterpene
β-Phellandrene	0.25	Monoterpene
Limonene	3.33	Monoterpene
(*E*)-β-Ocimene	0.04	Monoterpene
Unknown	0.03	Monoterpene
γ-Terpinene	0.55	Monoterpene
meta-Cymenene	0.02	Monoterpene
Isoterpinolene	0.08	Monoterpene
para-Cymenene	0.08	Monoterpene
Terpinolene	1.67	Monoterpene
α-Pinene oxide	0.03	Monoterpenic ether
Perillene	0.02	Monoterpenic ether
Unknown	0.01	Oxygenated monoterpene
Linalool	0.36	Monoterpenic alcohol
endo-Fenchol	0.03	Monoterpenic alcohol
cis-para-Mentha-2,8-dien-1-ol	0.03	Monoterpenic alcohol
trans-Pinocarveol	0.04	Monoterpenic alcohol
Camphor	0.04	Monoterpenic ketone

Epoxyterpinolene	0.03	Monoterpenic ether
Camphene hydrate	0.01	Monoterpenic alcohol
meta-Mentha-4,6-dien-8-ol	0.02	Monoterpenic alcohol
Karahanaenone	0.17	Monoterpenic ketone
Borneol	0.02	Monoterpenic alcohol
α-Phellandren-8-ol	0.01	Monoterpenic alcohol
Umbellulone	0.10	Monoterpenic ketone
Terpinen-4-ol	1.68	Monoterpenic alcohol
meta-Cymen-8-ol	0.02	Monoterpenic alcohol
para-Cymen-8-ol	0.05	Monoterpenic alcohol
Unknown	0.02	Oxygenated monoterpene
α-Terpineol	0.43	Monoterpenic alcohol
Myrtenol	0.01	Monoterpenic alcohol
Verbenone	0.02	Monoterpenic ketone
Unknown	0.03	Oxygenated monoterpene
trans-Carveol	0.02	Monoterpenic alcohol
Unknown	0.03	Oxygenated monoterpene
Carvacrol methyl ether	0.02	Monoterpenic ether
Car-3-en-2-one	0.01	Monoterpenic ketone
Linalyl acetate	0.02	Monoterpenic ester
(*trans*?)-Linalool oxide acetate (fur.)?	0.03	Monoterpenic ester
Bornyl acetate	0.07	Monoterpenic ester
Terpinen-4-yl acetate	0.01	Monoterpenic ester
Unknown	0.20	Monoterpenic ester
Thymol	0.03	Monoterpenic alcohol
Unknown	0.02	Oxygenated monoterpene
Unknown	0.02	Unknown
Unknown	0.20	Monoterpenic ester
α-Cubebene	0.07	Sesquiterpene
α-Terpinyl acetate	1.20	Monoterpenic ester
α-Ylangene	0.03	Sesquiterpene
α-Copaene	0.06	Sesquiterpene
β-Bourbonene	0.02	Sesquiterpene
β-Cubebene	0.02	Sesquiterpene
β-Elemene	0.02	Sesquiterpene
α-Cedrene	0.20	Sesquiterpene
Sesquithujene	0.24	Sesquiterpene
β-Caryophyllene	0.15	Sesquiterpene
β-Cedrene	0.18	Sesquiterpene
β-Copaene	0.03	Sesquiterpene
cis-Thujopsene	0.02	Sesquiterpene
cis-Muurola-3,5-diene	0.04	Sesquiterpene
α-Humulene	0.20	Sesquiterpene
cis-Muurola-4(15),5-diene	0.12	Sesquiterpene
cis-Cadina-1(6),4-diene	0.04	Sesquiterpene

Unknown	0.02	Sesquiterpene
trans-Cadina-1(6),4-diene	0.04	Sesquiterpene
α-Amorphene	0.23	Sesquiterpene
Germacrene D	0.56	Sesquiterpene
trans-Muurola-4(15),5-diene	0.02	Sesquiterpene
β-Alaskene	0.02	Sesquiterpene
Epizonarene	0.08	Sesquiterpene
α-Muurolene	0.19	Sesquiterpene
δ-Amorphene	0.03	Sesquiterpene
γ-Cadinene	0.21	Sesquiterpene
trans-Calamenene	0.05	Sesquiterpene
δ-Cadinene	0.38	Sesquiterpene
Zonarene	0.03	Sesquiterpene
trans-Cadina-1,4-diene	0.03	Sesquiterpene
α-Cadinene	0.03	Sesquiterpene
α-Calacorene	0.02	Sesquiterpene
Salviadienol?	0.02	Sesquiterpenic alcohol
Caryophyllene oxide	0.02	Sesquiterpenic ether
allo-Cedrol	0.02	Sesquiterpenic alcohol
α-Cedrol	0.71	Sesquiterpenic alcohol
α-Acorenol	0.03	Sesquiterpenic alcohol
τ-Muurolol	0.02	Sesquiterpenic alcohol
α-Muurolol	0.02	Sesquiterpenic alcohol
α-Cadinol	0.03	Sesquiterpenic alcohol
Unknown	0.03	Unknown
Manoyl oxide	0.03	Diterpenic ether
Isopimaradiene	0.02	Diterpene
Consolidated total	**99.65**	

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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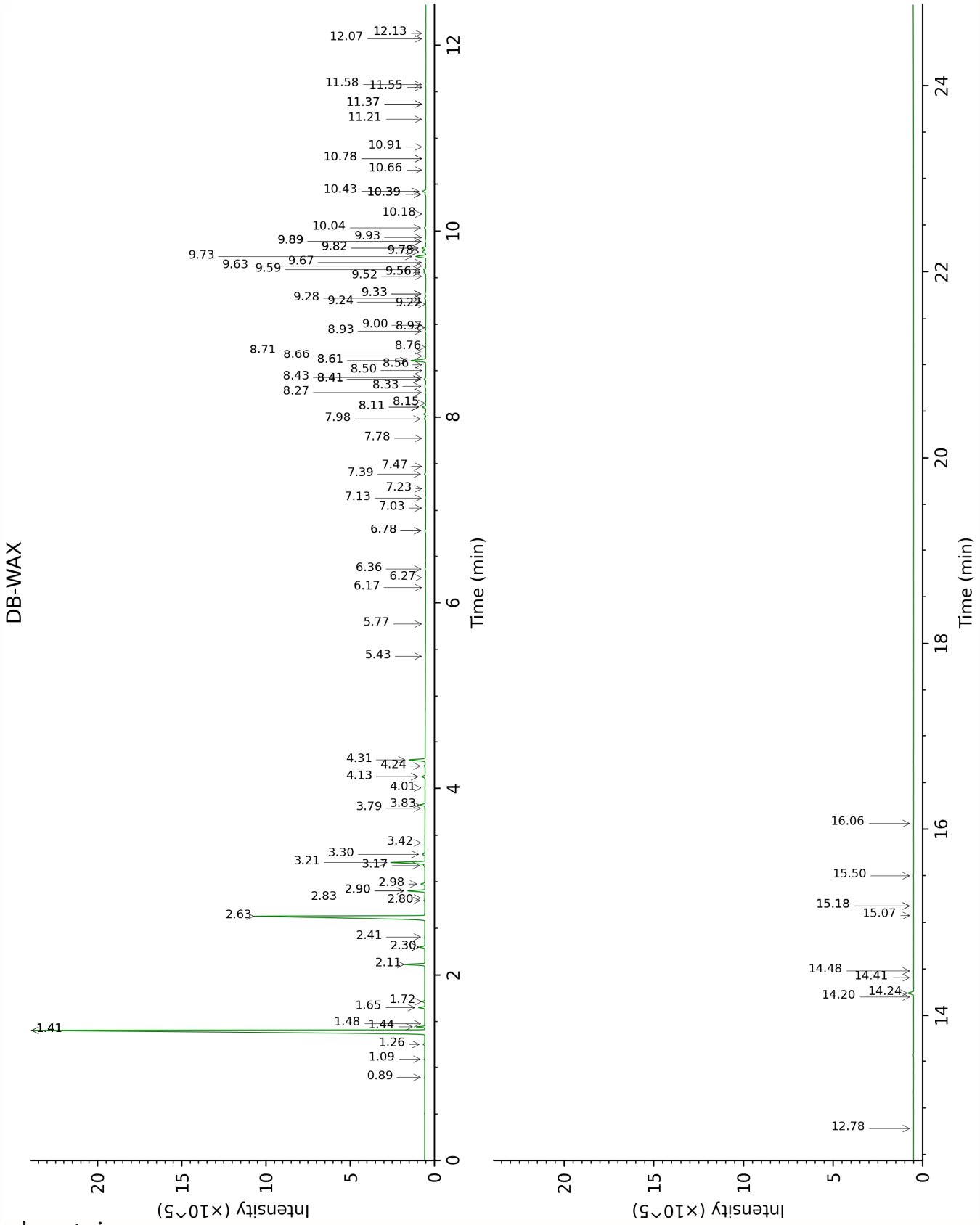
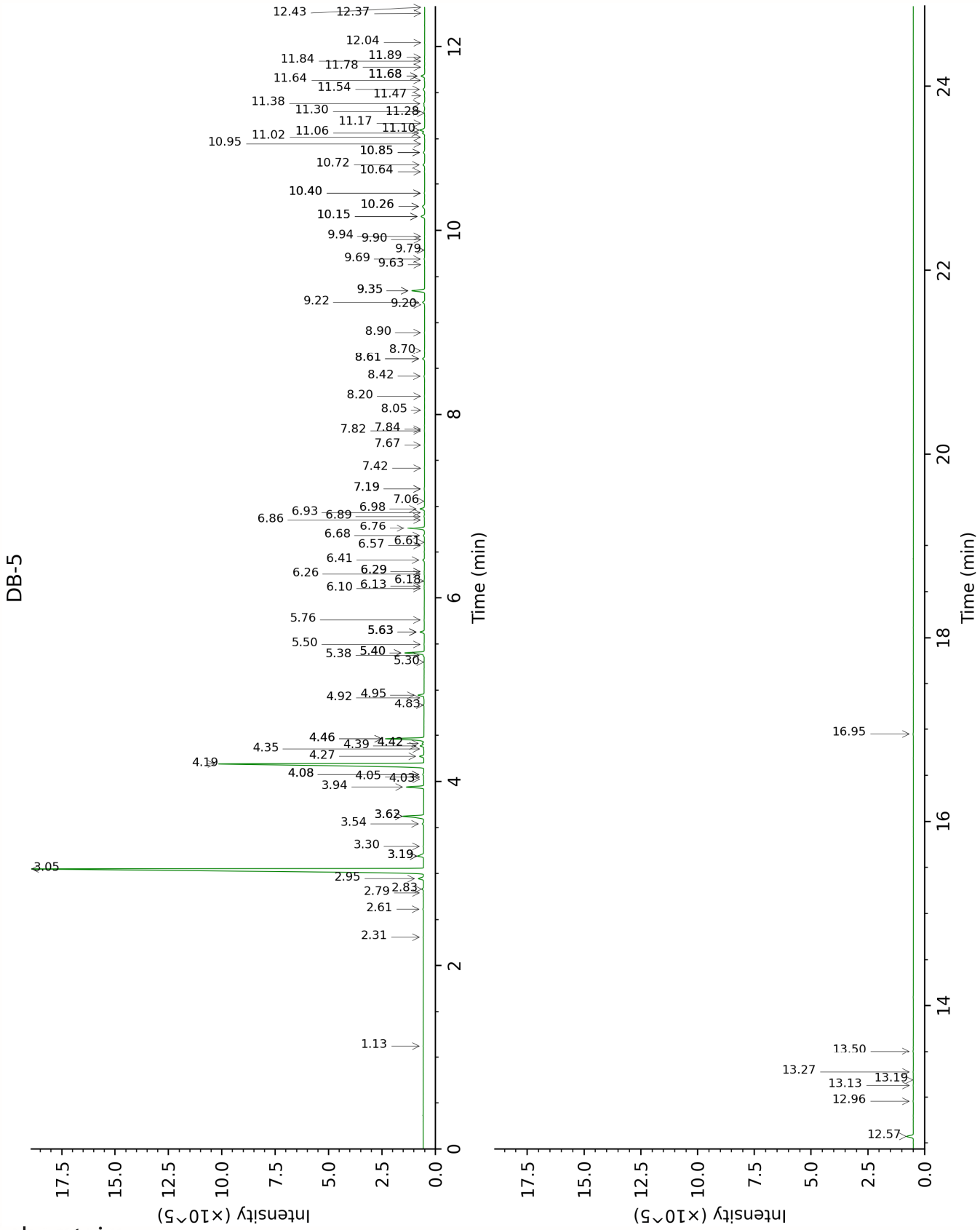

DB-WAX
Time (min)
Intensity (×10^5)
12.07
12.13
11.58
11.55
11.37
11.21
10.91
10.78
10.66
10.43
10.39
10.18
10.04
9.93
9.89
9.82
9.78
9.73
9.67
9.63
9.59
9.56
9.52
9.33
9.28
9.24
9.22
9.00
8.93
8.97
8.76
8.71
8.66
8.61
8.56
8.50
8.43
8.41
8.33
8.27
8.15
8.11
7.98
7.78
7.47
7.39
7.23
7.13
7.03
6.78
6.36
6.27
6.17
5.77
5.43
4.31
4.24
4.13
4.01
3.83
3.79
3.42
3.30
3.21
3.17
2.98
2.90
2.83
2.80
2.63
2.41
2.30
2.11
1.72
1.65
1.48
1.44
1.41
1.26
1.09
0.89
16.06
15.50
15.18
15.07
14.48
14.41
14.20
14.24
12.78


DB-5
Time (min)
Intensity (×10^5)
12.43
12.37
12.04
11.84
11.89
11.78
11.64
11.68
11.54
11.47
11.38
11.30
11.28
11.17
11.10
11.02
11.06
10.95
10.85
10.72
10.64
10.40
10.26
10.15
9.94
9.90
9.79
9.69
9.63
9.35
9.22
9.20
8.90
8.70
8.61
8.42
8.20
8.05
7.82
7.84
7.67
7.42
7.19
7.06
6.98
6.93
6.89
6.86
6.76
6.68
6.57
6.61
6.41
6.29
6.26
6.18
6.10
6.13
5.76
5.63
5.50
5.40
5.38
5.30
4.92
4.95
4.83
4.46
4.39
4.42
4.35
4.27
4.19
4.08
4.05
4.03
3.94
3.62
3.54
3.30
3.19
3.05
2.95
2.79
2.83
2.61
2.31
1.13
16.95
13.50
13.27
13.19
13.13
12.96
12.57

FULL ANALYSIS DATA

	Column DB-WAX			Column DB-5		
Toluene	1.48	1003.4	0.01	1.13	759.4	0.01
Cyclofenchene	0.89	912.9	0.02	2.31	878.7	0.01
Bornylene	1.09	944.6	0.04	2.61	904.5	0.04
Hashishene	1.41*	996.2	[53.71]	2.79	916.3	0.02
Tricyclene	1.26	971.7	0.12	2.83	919.1	0.12
α-Thujene	1.44	1000.0	0.52	2.95	926.7	0.52
α-Pinene	1.41*	996.2	[53.71]	3.05	933.8	53.59
Camphene	1.72	1026.9	0.20	3.19*	943.1	[0.67]
α-Fenchene	1.65	1020.4	0.47	3.19*	943.1	[0.67]
Thuja-2,4(10)-diene	2.30*	1085.0	[0.48]	3.30	950.2	0.02
3,7,7-Trimethylcyclohepta-1,3,5-triene	2.90*	1134.9	[1.55]	3.54	966.6	0.10
β-Pinene	2.11	1066.5	1.71	3.62*	972.1	[2.17]
Sabinene	2.30*	1085.0	[0.48]	3.62*	972.1	[2.17]
Myrcene	2.90*	1134.9	[1.55]	3.94	993.5	1.45
2-Carene	2.41	1095.8	0.02	4.03	999.2	0.03
Menthatriene isomer I	3.42	1175.6	0.02	4.05	1000.8	0.02
α-Phellandrene	2.80	1126.7	0.09	4.08*	1002.6	[0.10]
Pseudolimonene	2.83	1128.9	0.02	4.08*	1002.6	[0.10]
Δ3-Carene	2.63	1113.5	24.44	4.19	1010.0	24.42
α-Terpinene	2.98	1140.7	0.38	4.27	1015.3	0.38
meta-Cymene	4.13*	1229.3	[0.36]	4.35	1020.3	0.04
para-Cymene	4.13*	1229.3	[0.36]	4.39	1022.4	0.33
Sylvestrene	3.17	1156.3	0.14	4.42	1024.2	0.14
β-Phellandrene	3.30	1165.8	0.25	4.46*	1027.4	[3.56]
Limonene	3.21	1158.9	3.33	4.46*	1027.4	[3.56]
(*E*)-β-Ocimene	4.01	1220.4	0.03	4.83	1050.6	0.04
Unknown CUSE I [m/z 93, 91 (54), 92 (31), 77 (29), 79 (17), 43 (13), 41 (10), 136 (9)]	3.79	1204.4	0.04	4.92	1056.1	0.03
γ-Terpinene	3.83	1207.1	0.55	4.94	1057.9	0.55
meta-Cymenene	6.27	1382.2	0.02	5.30	1080.8	0.02
Isoterpinolene	4.24	1237.7	0.10	5.38	1085.4	0.08
para-Cymenene	6.36	1388.9	0.08	5.40*	1087.1	[1.78]
Terpinolene	4.31	1242.6	1.67	5.40*	1087.1	[1.78]
α-Pinene oxide	5.43	1322.2	0.02	5.50	1093.0	0.03
Perillene	6.17	1374.7	0.02	5.63*	1101.6	[0.39]
Unknown CEDE I [m/z 95, 150 (45), 110	5.77	1346.8	0.01	5.63*	1101.6	[0.39]

(35), 107 (23), 109 (21)]						
Linalool	8.11*	1518.1	[0.36]	5.63*	1101.6	[0.39]
endo-Fenchol	8.41*	1541.1	[0.20]	5.76	1110.1	0.03
cis-para-Mentha-2,8-dien-1-ol	9.52	1628.0	0.02	6.10	1132.2	0.03
trans-Pinocarveol	9.24	1605.7	0.03	6.13	1133.9	0.04
Camphor	7.23	1452.7	0.03	6.18	1137.5	0.04
Epoxyterpinolene	6.78*	1418.9	[0.13]	6.26	1142.4	0.03
Camphene hydrate	8.50	1548.4	0.01	6.29*	1144.2	[0.03]
meta-Mentha-4,6-dien-8-ol	9.33*	1612.8	[0.12]	6.29*	1144.2	[0.03]
Karahanaenone	7.39	1464.2	0.16	6.41	1152.3	0.17
Borneol	9.82*	1652.2	[0.45]	6.57	1162.6	0.02
α-Phellandren-8-ol	10.18	1681.7	0.04	6.61	1164.9	0.01
Umbellulone	8.93	1581.3	0.10	6.68	1169.6	0.10
Terpinen-4-ol	8.61*	1556.5	[1.82]	6.76	1175.1	1.68
meta-Cymen-8-ol	11.55	1796.5	0.02	6.86	1181.1	0.02
para-Cymen-8-ol	11.58	1799.1	0.05	6.89	1183.5	0.05
Unknown JUVI II [m/z 93, 59 (85), 81 (36), 92 (35), 43 (34), 121 (20), 136 (16)...]	9.78*	1649.2	[0.53]	6.94	1186.3	0.02
α-Terpineol	9.82*	1652.2	[0.45]	6.98	1189.0	0.43
Myrtenol	10.91	1742.3	0.02	7.06	1194.4	0.01
Verbenone	9.63	1636.9	0.02	7.19*	1203.1	[0.04]
Unknown PINI IV [m/z 109, 91 (100), 81 (88), 94 (75), 119 (74), 96 (73), 41 (63)... 150 (2)]	10.78*	1731.7	[0.03]	7.19*	1203.1	[0.04]
trans-Carveol	11.37*	1781.1	[0.02]	7.42	1218.3	0.02
Unknown CIAU II [m/z 137, 152 (28), 43 (25), 91 (24), 109 (23), 119 (19)]	11.37*	1781.1	[0.02]	7.67	1235.5	0.03
Carvacrol methyl ether	8.56	1553.1	0.01	7.82	1246.0	0.02
Car-3-en-2-one	10.39*	1698.9	[0.13]	7.84	1247.3	0.01
Linalyl acetate	8.15	1521.3	0.05	8.05	1261.4	0.02
(*trans*?)-Linalool oxide acetate (fur.)?	8.71	1564.7	0.03	8.20	1271.8	0.03
Bornyl acetate	8.27	1530.3	0.06	8.42	1286.7	0.07
Terpinen-4-yl acetate	8.76	1568.3	0.01	8.61*	1299.7	[0.21]
Unknown CUSE III	8.61*	1556.5	[1.82]	8.61*	1299.7	[0.21]

[m/z 121, 93 (97), 43 (81), 136 (48), 107 (47), 108 (44)...]						
Thymol	15.18*	2133.7	[0.02]	8.70	1306.2	0.03
Unknown CUSE IV [m/z 150, 107 (98), 91 (79), 108 (61)]	12.07	1842.3	0.02	8.90	1316.7	0.02
Unknown CUSE V [m/z 93, 92 (34), 43 (31), 91 (27)...]				9.20	1338.2	0.02
Unknown CUSE VI [m/z 93, 43 (50), 121 (50), 136 (35)...]	9.56*	1631.4	[0.24]	9.22	1340.0	0.20
α-Cubebene	6.78*	1418.9	[0.13]	9.35*	1348.9	[1.27]
α-Terpinyl acetate	9.73	1645.1	1.20	9.35*	1348.9	[1.27]
α-Ylangene	7.03	1437.4	0.04	9.63	1369.0	0.03
α-Copaene	7.13	1445.2	0.05	9.69	1373.3	0.06
β-Bourbonene	7.47	1470.4	0.03	9.79	1380.2	0.02
β-Cubebene	7.78	1492.6	0.01	9.90	1388.2	0.02
β-Elemene	8.43	1542.6	0.02	9.94	1390.7	0.02
α-Cedrene	7.98	1508.4	0.20	10.15*	1406.0	[0.44]
Sesquithujene	8.11*	1518.1	[0.36]	10.15*	1406.0	[0.44]
β-Caryophyllene	8.41*	1541.1	[0.20]	10.26*	1414.2	[0.33]
β-Cedrene	8.33	1535.3	0.18	10.26*	1414.2	[0.33]
β-Copaene	8.41*	1541.1	[0.20]	10.40*	1424.9	[0.05]
cis-Thujopsene	8.66	1560.4	0.02	10.40*	1424.9	[0.05]
cis-Muurola-3,5-diene	8.97	1584.4	0.03	10.64	1442.9	0.04
α-Humulene	9.28	1609.1	0.17	10.72	1448.5	0.20
cis-Muurola-4(15),5-diene	9.33*	1612.8	[0.12]	10.85*	1458.6	[0.16]
cis-Cadina-1(6),4-diene	9.00	1586.3	0.04	10.85*	1458.6	[0.16]
Unknown DACA II [m/z 161, 91 (57), 120 (46), 105 (42), 133 (25), 119 (22), 41 (21), 204 (21)]	9.56*	1631.4	[0.24]	10.95	1465.6	0.02
trans-Cadina-1(6),4-diene	9.22	1604.0	0.03	11.02	1471.0	0.04
α-Amorphene	9.59	1633.8	0.28	11.06	1474.4	0.23
Germacrene D	9.78*	1649.2	[0.53]	11.10	1476.8	0.56
trans-Muurola-4(15),5-diene	9.89*	1658.0	[0.14]	11.17	1482.3	0.02
β-Alaskene	9.67	1639.9	0.08	11.28	1490.6	0.02

Epizonarene	9.89*	1658.0	[0.14]	11.30	1491.8	0.08
α-Muurolene	10.04	1669.7	0.19	11.38†	1498.4	0.11
δ-Amorphene	9.93	1661.4	0.05	11.47	1504.8	0.03
γ-Cadinene	10.39*	1698.9	[0.13]	11.54	1510.2	0.21
trans-Calamenene	11.21	1767.4	0.05	11.64	1517.9	0.05
δ-Cadinene	10.43	1701.6	0.38	11.68*	1521.6	[0.41]
Zonarene	10.39*	1698.9	[0.13]	11.68*	1521.6	[0.41]
trans-Cadina-1,4-diene	10.66	1721.5	0.03	11.78	1529.2	0.03
α-Cadinene	10.78*	1731.7	[0.03]	11.84	1534.4	0.03
α-Calacorene	12.13	1847.5	0.03	11.89	1537.7	0.02
Salviadienol?	14.41	2058.1	0.02	12.04	1550.2	0.02
Caryophyllene oxide	12.78	1905.4	0.01	12.36	1575.5	0.02
allo-Cedrol	14.20	2038.2	0.02	12.43	1580.8	0.02
α-Cedrol	14.24	2042.2	0.70	12.57	1592.0	0.71
α-Acorenol	14.48	2065.1	0.03	12.96	1623.0	0.03
τ-Muurolol	15.07	2123.5	0.02	13.13	1637.2	0.02
α-Muurolol	15.18*	2133.7	[0.02]	13.19	1642.2	0.02
α-Cadinol	15.50	2166.1	0.04	13.27	1649.4	0.03
Unknown CUSE VIII [m/z 85, 57 (59), 79 (26), 67 (18), 41 (16), 80 (15), 81 (10), 77 (8), 238 (7)]				13.50	1668.5	0.03
Manoyl oxide				16.95	1977.3	0.03
Isopimaradiene	16.06	2223.6	0.02			
Total reported		99.23%			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