Date : 2026-03-02

Certificate of Analysis - GC Profiling

Sample Identification

Internal code : 26B03-PTH02
Customer Identification : Juniper Berry - India - J20116R
Type : Essential Oil
Source : *Juniperus communis*
Customer : Plant Therapy

Checked an 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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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 2026-02-05 to make a correction in the sample identification section.

Laboratoire PhytoChemia
628 Boulevard du Saguenay Ouest, Saguenay (Qc) G7J 1H4 | www.phytochemia.com

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 : 2026-02-05

Physicochemical data

Refractive index : 1.4727 ± 0.0003 (20 °C)
Method : PC-MAT-016 - Measure of the refractive index of a liquid.
Analyst : Cindy Caron B. Sc.
Date : 2026-02-03

Conclusion

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

628 Boulevard du Saguenay, Saguenay (Qc) G7J 1H4 | www.phytochemia.com

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	0.04	Monoterpene
Bornylene	0.10	Monoterpene
Hashishene	0.16	Monoterpene
Tricyclene	0.40	Monoterpene
α-Thujene	0.40	Monoterpene
α-Pinene	53.68	Monoterpene
Camphene	1.54	Monoterpene
α-Fenchene	0.38	Monoterpene
Thuja-2,4(10)-diene	0.04	Monoterpene
3,7,7-Trimethylcyclohepta-1,3,5-triene	0.12	Monoterpene
Unknown	0.04	Monoterpene
Sabinene	1.16	Monoterpene
β-Pinene	2.00	Monoterpene
Unknown	0.29	Monoterpene
Octen-3-ol	0.03	Aliphatic alcohol
Myrcene	17.16	Monoterpene
2-Carene	0.15	Monoterpene
Pseudolimonene	0.72	Monoterpene
α-Phellandrene	0.38	Monoterpene
Δ3-Carene	1.27	Monoterpene
α-Terpinene	0.10	Monoterpene
para-Cymene	0.24	Monoterpene
1,8-Cineole	0.02	Monoterpenic ether
β-Phellandrene	0.12	Monoterpene
Limonene	9.43	Monoterpene
γ-Terpinene	0.13	Monoterpene
cis-Linalool oxide (fur.)	0.06	Monoterpenic alcohol
meta-Cymenene	0.03	Monoterpene
Terpinolene	1.00	Monoterpene
para-Cymenene	0.04	Monoterpene
6,7-Epoxymyrcene	0.02	Monoterpenic ether
α-Pinene oxide	0.02	Monoterpenic ether
Linalool	0.10	Monoterpenic alcohol
endo-Fenchol	0.02	Monoterpenic alcohol
α-Campholenal	0.04	Monoterpenic aldehyde
cis-Limonene oxide	0.03	Monoterpenic ether
trans-Pinocarveol	0.07	Monoterpenic alcohol
cis-Verbenol	0.03	Monoterpenic alcohol
trans-Verbenol	0.16	Monoterpenic alcohol

Camphene hydrate	0.04	Monoterpenic alcohol
Terpinen-4-ol	0.56	Monoterpenic alcohol
para-Cymen-8-ol	0.04	Monoterpenic alcohol
Myrtenal	0.03	Monoterpenic aldehyde
α-Terpineol	0.04	Monoterpenic alcohol
Myrtenol	0.05	Monoterpenic alcohol
Verbenone	0.04	Monoterpenic ketone
trans-Carveol	0.04	Monoterpenic alcohol
Citronellol	0.03	Monoterpenic alcohol
Methyl citronellate	0.03	Monoterpenic ester
Bornyl acetate	0.08	Monoterpenic ester
δ-Elemene	0.06	Sesquiterpene
α-Cubebene	0.02	Sesquiterpene
α-Copaene	0.06	Sesquiterpene
β-Elemene	0.08	Sesquiterpene
β-Funebrene	0.06	Sesquiterpene
α-Cedrene	0.06	Sesquiterpene
β-Caryophyllene	1.21	Sesquiterpene
β-Copaene	0.05	Sesquiterpene
γ-Elemene	0.10	Sesquiterpene
α-Himachalene	0.16	Sesquiterpene
trans-Muurola-3,5-diene	0.03	Sesquiterpene
α-Humulene	0.06	Sesquiterpene
trans-Cadina-1(6),4-diene	0.03	Sesquiterpene
γ-Muurolene	0.14	Sesquiterpene
Germacrene D	0.10	Sesquiterpene
β-Selinene	0.04	Sesquiterpene
α-Selinene	0.04	Sesquiterpene
Bicyclogermacrene	0.02	Sesquiterpene
α-Muurolene	0.35	Sesquiterpene
Cuparene	0.01	Sesquiterpene
Germacrene A	0.06	Sesquiterpene
(3*E*,6*E*)-α-Farnesene	0.04	Sesquiterpene
γ-Cadinene	0.11	Sesquiterpene
δ-Cadinene	0.19	Sesquiterpene
trans-Calamenene	0.03	Sesquiterpene
Selina-4(15),7(11)-diene	0.06	Sesquiterpene
α-Cadinene	0.03	Sesquiterpene
Selina-3,7(11)-diene	0.06	Sesquiterpene
α-Elemol	0.12	Sesquiterpenic alcohol
Germacrene B	0.25	Sesquiterpene
(*E*)-Nerolidol	0.02	Sesquiterpenic alcohol
Caryophyllene oxide	0.07	Sesquiterpenic ether
Caryophyllene oxide isomer	0.03	Sesquiterpenic ether
allo-Cedrol	0.03	Sesquiterpenic alcohol

α-Cedrol	0.35	Sesquiterpenic alcohol
Alismol	0.05	Sesquiterpenic alcohol
β-Acorenol	0.03	Sesquiterpenic alcohol
τ-Cadinol	0.06	Sesquiterpenic alcohol
τ-Muurolol	0.03	Sesquiterpenic alcohol
α-Muurolol	0.03	Sesquiterpenic alcohol
β-Eudesmol	0.06	Sesquiterpenic alcohol
α-Eudesmol	0.04	Sesquiterpenic alcohol
α-Cadinol	0.04	Sesquiterpenic alcohol
Juniper camphor	0.06	Sesquiterpenic alcohol
β-Turmerone	0.05	Sesquiterpenic ketone
Aromadendrane-4,10-diol	0.05	Sesquiterpenic alcohol
(2*E*,6*E*)-Farnesol	0.02	Sesquiterpenic alcohol
Cedryl acetate	0.03	Sesquiterpenic ester
5-Ethenyl-1,5-bis(4-methyl-3-penten-1-yl)-cyclohexene?	0.09	Diterpene
4-Ethenyl-1,4-bis(4-methyl-3-penten-1-yl)-cyclohexene?	0.05	Diterpene
meta-Camphorene	0.72	Diterpene
para-Camphorene	0.29	Diterpene
18-Norabieta-8,11,13-triene?	0.03	Norditerpene
ar-Abietatriene	0.02	Diterpene
7,13-Abietadiene	0.11	Diterpene
Neoabietadiene?	0.03	Diterpene
Abieta-8(14),13(15)-diene	0.06	Diterpene
Sandaracopimarinal?	0.15	Diterpenic aldehyde
4-epi-Abietal?	0.04	Diterpenic aldehyde
Conifer resinic acid VIII?	0.05	Diterpenic acid
Abieta-7,13-dien-3-one	0.08	Diterpenic ketone
Consolidated total	**99.10**	

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

Note: no correction factor was applied

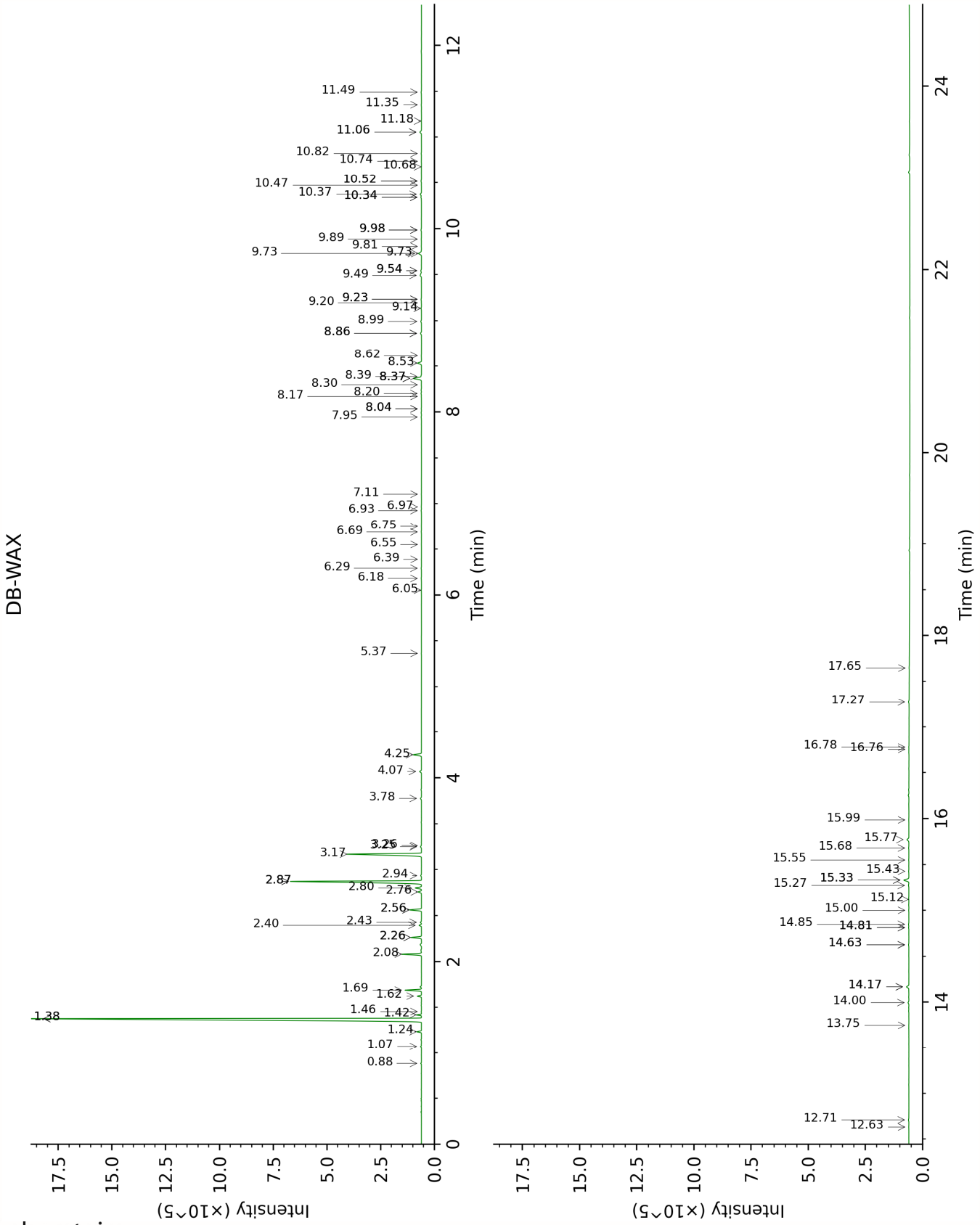
About "consolidated" data: The table above presents the breakdown of the sample volatile constituents after applying an algorithm to collapse data acquired from the multi-columns system of PhytoChemia into a single set of consolidated contents. In case of discrepancies between columns, the algorithm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

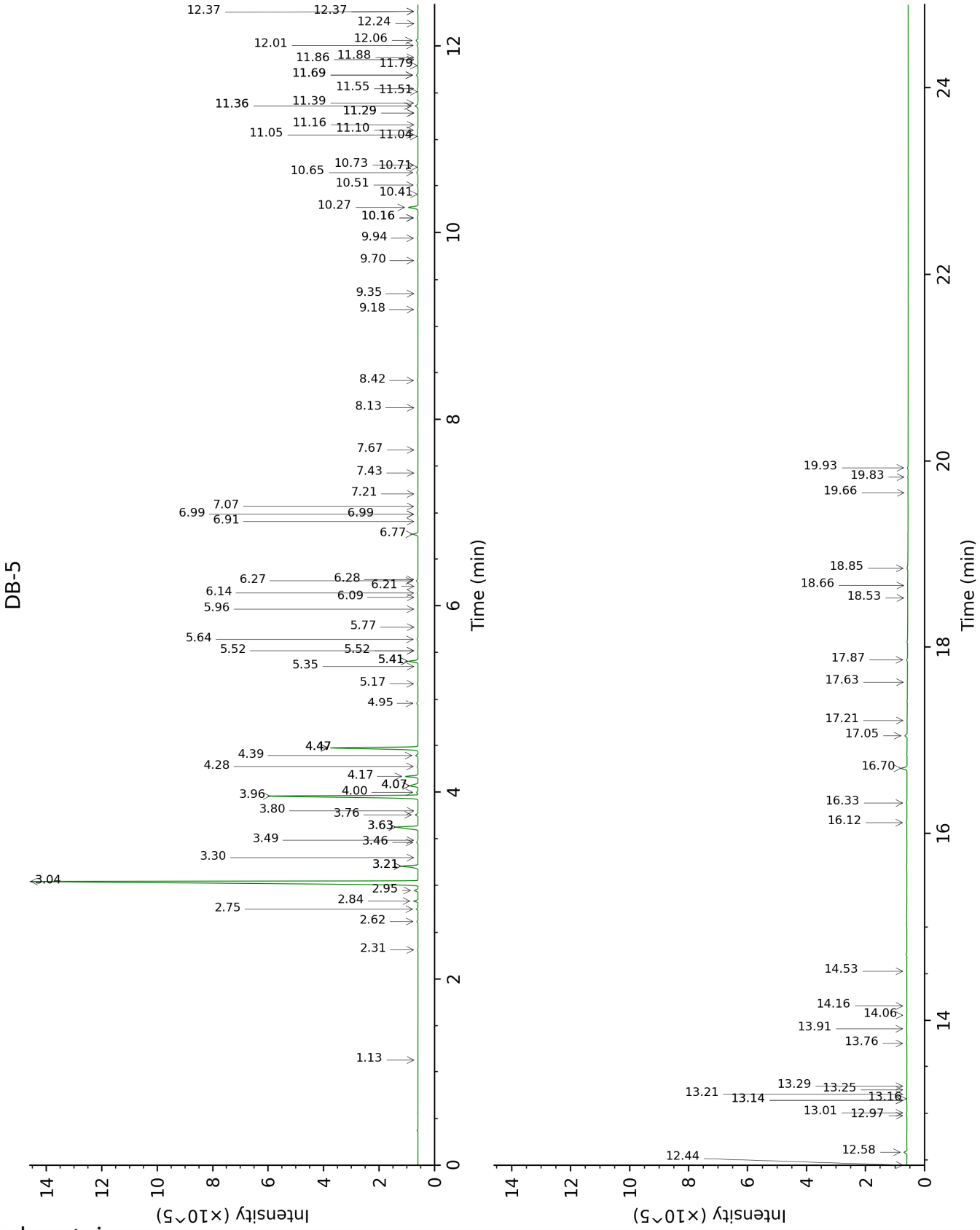
Unknowns: Unknown compounds' mass spectral data is presented in the "Full analysis data" table. The occurrence of unknown compounds is to be expected in many samples, and does not denote particular problems unless noted otherwise in the conclusion.

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.

628 Boulevard du Saguenay, Saguenay (Qc) G7J 1H4 | www.phytochemia.com


DB-WAX
Time (min)
Intensity (×10^5)
11.49
11.35
11.18
11.06
10.82
10.74
10.68
10.47
10.52
10.37
10.34
9.98
9.89
9.81
9.73
9.73
9.49
9.54
9.20
9.23
9.14
8.99
8.86
8.62
8.53
8.39
8.37
8.30
8.20
8.17
8.04
7.95
7.11
6.93
6.97
6.69
6.75
6.55
6.39
6.29
6.18
6.05
5.37
4.25
4.07
3.78
3.25
3.17
2.94
2.87
2.80
2.76
2.56
2.40
2.43
2.26
2.08
1.69
1.62
1.46
1.42
1.38
1.24
1.07
0.88
17.65
17.27
16.78
16.76
15.99
15.77
15.68
15.55
15.43
15.27
15.33
15.12
15.00
14.85
14.81
14.63
14.17
14.00
13.75
12.71
12.63


DB-5
Time (min)
Intensity (×10^5)
12.37
12.24
12.01
12.06
11.86
11.88
11.79
11.69
11.55
11.51
11.36
11.39
11.29
11.16
11.10
11.05
11.04
10.65
10.73
10.71
10.51
10.41
10.27
10.16
9.94
9.70
9.35
9.18
8.42
8.13
7.67
7.43
7.21
7.07
6.99
6.99
6.91
6.77
6.27
6.28
6.21
6.14
6.09
5.96
5.77
5.64
5.52
5.52
5.35
5.41
5.17
4.95
4.47
4.39
4.28
4.17
4.07
3.96
4.00
3.80
3.76
3.63
3.49
3.46
3.30
3.21
3.04
2.95
2.84
2.75
2.62
2.31
1.13
19.93
19.83
19.66
18.85
18.66
18.53
17.87
17.63
17.21
17.05
16.70
16.33
16.12
14.53
14.16
14.06
13.91
13.76
13.29
13.25
13.21
13.16
13.14
13.01
12.97
12.58
12.44

FULL ANALYSIS DATA

	Column DB-WAX			Column DB-5		
Toluene	1.46	1003.5	0.03	1.13	759.0	0.01
Cyclofenchene	0.88	913.9	0.05	2.31	878.9	0.04
Bornylene	1.07	944.7	0.07	2.62	904.7	0.10
Hashishene	1.38*	994.3	[53.74]	2.75	913.5	0.16
Tricyclene	1.24	971.1	0.40	2.84	919.3	0.40
α-Thujene	1.42	1000.1	0.38	2.95	927.0	0.40
α-Pinene	1.38*	994.3	[53.74]	3.04	933.4	53.68
Camphene	1.69	1026.7	1.54	3.21*	944.4	[1.91]
α-Fenchene	1.62	1020.2	0.38	3.21*	944.4	[1.91]
Thuja-2,4(10)-diene	2.26*	1083.5	[1.06]	3.30	950.5	0.04
3,7,7-Trimethylcyclohepta-1,3,5-triene	2.87*	1134.6	[17.16]	3.46	961.5	0.12
Unknown ZIOF V [m/z 91, 119 (60), 77 (36), 92 (31), 93 (31)... 134 (23)]	2.56*	1110.3	[1.26]	3.49	963.1	0.04
Sabinene	2.26*	1083.5	[1.06]	3.63*	972.5	[3.17]
β-Pinene	2.08	1065.5	2.00	3.63*	972.5	[3.17]
Unknown ORVU I [m/z 93, 79 (73), 67 (49), 95 (42), 91 (41), 121 (38)...]	2.40	1096.7	0.25	3.76	981.4	0.29
Octen-3-ol	6.69	1415.0	0.03	3.80	984.2	0.03
Myrcene	2.87*	1134.6	[17.16]	3.96	995.0	17.16
2-Carene	2.43	1099.7	0.12	4.00	997.6	0.15
Pseudolimonene	2.80	1129.0	0.72	4.07*	1002.3	[1.11]
α-Phellandrene	2.76	1125.6	0.38	4.07*	1002.3	[1.11]
Δ3-Carene	2.56*	1110.3	[1.26]	4.17	1008.9	1.27
α-Terpinene	2.94	1139.5	0.08	4.28	1015.6	0.10
para-Cymene	4.07	1226.8	0.21	4.39	1023.0	0.24
1,8-Cineole	3.26	1165.2	0.02	4.47*	1028.3	[9.60]
β-Phellandrene	3.25	1164.3	0.12	4.47*	1028.3	[9.60]
Limonene	3.17	1157.9	9.43	4.47*	1028.3	[9.60]
γ-Terpinene	3.78	1205.3	0.11	4.95	1058.6	0.13
cis-Linalool oxide (fur.)	6.55	1404.8	0.01	5.17	1072.5	0.06
meta-Cymenene	6.18	1378.2	0.03	5.35	1084.3	0.03
Terpinolene	4.25	1240.1	1.00	5.41*	1087.8	[1.05]
para-Cymenene	6.29	1386.1	0.04	5.41*	1087.8	[1.05]
6,7-Epoxymyrcene	6.05	1369.0	0.02	5.52*	1095.0	[0.04]
α-Pinene oxide	5.36	1319.7	0.02	5.52*	1095.0	[0.04]
Linalool	8.04*	1515.4	[0.03]	5.64	1102.8	0.10

endo-Fenchol	8.30	1535.7	0.04	5.77	1111.3	0.02
α-Campholenal	6.97	1435.7	0.03	5.96	1123.8	0.04
cis-Limonene oxide	6.39	1393.1	0.01	6.09	1132.1	0.03
trans-Pinocarveol	9.14	1600.7	0.06	6.14	1135.1	0.07
cis-Verbenol	9.20	1605.4	0.02	6.21	1139.7	0.03
trans-Verbenol	9.49	1629.6	0.28	6.27	1143.6	0.16
Camphene hydrate	8.39	1542.7	0.06	6.28	1144.5	0.04
Terpinen-4-ol	8.53	1554.0	0.54	6.77	1176.1	0.56
para-Cymen-8-ol	11.49	1795.6	0.08	6.91	1185.5	0.04
Myrtenal	8.62	1560.4	0.03	6.99*	1190.6	[0.07]
α-Terpineol	9.73*	1648.8	[0.50]	6.99*	1190.6	[0.07]
Myrtenol	10.82	1739.0	0.04	7.07	1196.0	0.05
Verbenone	9.54*	1633.7	[0.11]	7.20	1204.8	0.04
trans-Carveol	11.35	1784.0	0.03	7.43	1220.0	0.04
Citronellol	10.68	1726.8	0.03	7.68	1236.9	0.03
Methyl citronellate	8.17	1525.9	0.03	8.13	1267.9	0.03
Bornyl acetate	8.20	1528.4	0.06	8.42	1288.1	0.08
δ-Elemene	6.93	1432.7	0.05	9.18	1338.0	0.06
α-Cubebene	6.75	1419.6	0.02	9.35	1350.0	0.02
α-Copaene	7.11	1445.9	0.02	9.70	1375.1	0.06
β-Elemene	8.37*	1541.1	[1.20]	9.94	1392.1	0.08
β-Funebrene	8.04*	1515.4	[0.03]	10.16*	1407.5	[0.11]
α-Cedrene	7.95	1508.6	0.06	10.16*	1407.5	[0.11]
β-Caryophyllene	8.37*	1541.1	[1.20]	10.27	1415.9	1.21
β-Copaene	8.37*	1541.1	[1.20]	10.41	1426.4	0.05
γ-Elemene	8.99	1589.5	0.11	10.51	1433.7	0.10
α-Himachalene	8.86*	1579.5	[0.14]	10.65	1444.2	0.16
trans-Muurola-3,5-diene	8.86*	1579.5	[0.14]	10.71	1448.6	0.03
α-Humulene	9.23*	1608.6	[0.07]	10.73	1450.2	0.06
trans-Cadina-1(6),4-diene	9.23*	1608.6	[0.07]	11.04	1473.3	0.03
γ-Muurolene	9.54*	1633.7	[0.11]	11.05	1474.4	0.14
Germacrene D	9.73*	1648.8	[0.50]	11.10	1478.3	0.10
β-Selinene	9.81	1655.0	0.03	11.16	1482.6	0.04
α-Selinene	9.89	1661.3	0.04	11.29*	1492.1	[0.06]
Bicyclogermacrene	9.98*	1669.4	[0.08]	11.29*	1492.1	[0.06]
α-Muurolene	9.98*	1669.4	[0.08]	11.36*	1497.7	[0.37]
Cuparene	11.06*	1758.8	[0.26]	11.36*	1497.7	[0.37]
Germacrene A	10.34*	1698.1	[0.09]	11.39	1500.0	0.06
(3*E*,6*E*)-α-Farnesene	10.47	1709.3	0.02	11.51	1509.3	0.04
γ-Cadinene	10.34*	1698.1	[0.09]	11.55	1511.9	0.11
δ-Cadinene	10.37	1701.0	0.19	11.69*	1523.3	[0.24]
trans-Calamenene	11.18	1768.9	0.03	11.69*	1523.3	[0.24]
Selina-4(15),7(11)-	10.52*	1713.1	[0.08]	11.79	1531.5	0.06

diene						
α-Cadinene	10.74	1731.8	0.02	11.86	1536.4	0.03
Selina-3,7(11)-diene	10.52*	1713.1	[0.08]	11.88	1538.3	0.06
α-Elemol	14.00	2023.6	0.11	12.01	1548.4	0.12
Germacrene B	11.06*	1758.8	[0.26]	12.06	1552.6	0.25
(*E*)-Nerolidol	13.75	1999.7	0.01	12.24	1566.8	0.02
Caryophyllene oxide	12.71	1903.7	0.07	12.37*	1577.1	[0.09]
Caryophyllene oxide isomer	12.63	1896.5	0.03	12.37*	1577.1	[0.09]
allo-Cedrol	14.17*	2040.1	[0.34]	12.44	1582.8	0.03
α-Cedrol	14.17*	2040.1	[0.34]	12.58	1593.9	0.35
Alismol	15.68	2189.4	0.06	12.98	1625.7	0.05
β-Acorenol	14.81*	2102.5	[0.04]	13.01	1628.2	0.03
τ-Cadinol	14.85	2106.1	0.06	13.14*	1639.3	[0.05]
τ-Muurolol	15.00	2121.4	0.03	13.14*	1639.3	[0.05]
α-Muurolol	15.12	2133.4	0.05	13.16	1640.8	0.03
β-Eudesmol	15.33*	2154.4	[0.76]	13.20	1644.8	0.06
α-Eudesmol	15.27	2148.6	0.07	13.25	1648.7	0.04
α-Cadinol	15.43	2164.0	0.04	13.29	1652.0	0.04
Juniper camphor	15.99	2221.1	0.03	13.76	1690.6	0.06
β-Turmerone	15.55	2176.3	0.03	13.91	1703.6	0.05
Aromadendrane-4,10-diol	16.76	2301.5	0.03	14.06	1716.0	0.05
(2*E*,6*E*)-Farnesol	16.78	2304.1	0.03	14.16	1724.7	0.02
Cedryl acetate	14.63*	2084.2	[0.05]	14.53	1757.1	0.03
5-Ethenyl-1,5-bis(4-methyl-3-penten-1-yl)-cyclohexene?	14.63*	2084.2	[0.05]	16.12	1899.7	0.09
4-Ethenyl-1,4-bis(4-methyl-3-penten-1-yl)-cyclohexene?	14.81*	2102.5	[0.04]	16.33	1919.4	0.05
meta-Camphorene	15.33*	2154.4	[0.76]	16.70	1954.9	0.72
para-Camphorene	15.77	2198.8	0.30	17.05	1988.1	0.29
18-Norabieta-8,11,13-triene?				17.21	2003.6	0.03
ar-Abietatriene	17.65	2398.1	0.04	17.63	2045.1	0.02
7,13-Abietadiene	17.27	2357.3	0.11	17.87	2068.9	0.11
Neoabietadiene?				18.53	2136.0	0.03
Abieta-8(14),13(15)-diene				18.66	2149.9	0.06
Sandaracopimarinal?				18.85	2169.0	0.15
4-epi-Abietal?				19.66	2255.5	0.04
Conifer resinic acid VIII?				19.83	2273.5	0.05
Abieta-7,13-dien-3-				19.93	2284.2	0.08

one						
Total reported	97.46%			99.13%		

*: 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

628 Boulevard du Saguenay, Saguenay (Qc) G7J 1H4 | www.phytochemia.com