Date : 2026-09-01

Certificate of Analysis - GC Profiling

Sample Identification

Internal code : 26H07-PTH05
Customer Identification : Cinnamon Leaf - Sri Lanka - CB0109
Type : Essential Oil
Source : *Cinnamomum verum*
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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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 2026-08-10 to make a modification in the sample identification section.

Méthode certifiée ISO 17025:2017 Certified method

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 : Alexis St-Gelais, Ph. D., Chimiste 2013-174
Date : 2026-08-10

Physicochemical data

Refractive index : 1.5346 ± 0.0003 (20 °C)
Method : PC-MAT-016 - Measure of the refractive index of a liquid.
Analyst : Cindy Caron B. Sc.
Date : 2026-08-07

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
Isovaleral	tr	Aliphatic aldehyde
2-Methylbutyral	tr	Aliphatic aldehyde
Toluene	tr	Simple phenolic
Ethyl 2-methylbutyrate	tr	Aliphatic ester
Styrene	0.02	Simple phenolic
Tricyclene	0.01	Monoterpene
α-Thujene	0.12	Monoterpene
α-Pinene	1.00	Monoterpene
α-Fenchene	0.01	Monoterpene
Camphene	0.33	Monoterpene
Benzaldehyde	0.19	Simple phenolic
Sabinene	0.01	Monoterpene
β-Pinene	0.31	Monoterpene
6-Methyl-5-hepten-2-one	tr	Aliphatic ketone
Myrcene	0.10	Monoterpene
Octanal	0.02	Aliphatic aldehyde
α-Phellandrene	0.67	Monoterpene
Δ3-Carene	0.08	Monoterpene
α-Terpinene	0.09	Monoterpene
meta-Cymene	0.02	Monoterpene
para-Cymene	1.01	Monoterpene
Limonene	0.31	Monoterpene
1,8-Cineole	0.10	Monoterpenic ether
β-Phellandrene	0.38	Monoterpene
Benzyl alcohol	0.04	Simple phenolic
(*Z*)-β-Ocimene	0.02	Monoterpene
(*E*)-β-Ocimene	0.02	Monoterpene
γ-Terpinene	0.01	Monoterpene
cis-Sabinene hydrate	0.01	Monoterpenic alcohol
cis-Linalool oxide (fur.)	0.02	Monoterpenic alcohol
Isoterpinolene	0.01	Monoterpene
Terpinolene	0.05	Monoterpene
trans-Linalool oxide (fur.)	0.03	Monoterpenic alcohol
para-Cymenene	0.02	Monoterpene
Linalool	2.05	Monoterpenic alcohol
(3*E*)-2,7-Dimethyl-3,6-octadien-2-ol	0.02	Monoterpenic alcohol
Phenylethyl alcohol	0.02	Simple phenolic
cis-para-Menth-2-en-1-ol	0.01	Monoterpenic alcohol
trans-Pinocarveol	0.01	Monoterpenic alcohol
Camphor	0.02	Monoterpenic ketone

Camphene hydrate	0.01	Monoterpenic alcohol
Hydrocinnamal	0.03	Phenylpropanoid
Benzyl acetate	0.02	Phenolic ester
Borneol	0.06	Monoterpenic alcohol
3-Methylbenzofuran?	0.02	Phenylpropanoid
Terpinen-4-ol	0.09	Monoterpenic alcohol
Cryptone	0.01	Normonoterpenic ketone
para-Cymen-8-ol	0.04	Monoterpenic alcohol
α-Terpineol	0.24	Monoterpenic alcohol
cis-α-Phellandrene epoxide (iPr vs Me)	0.04	Monoterpenic ether
Hydrocinnamyl alcohol	0.10	Phenylpropanoid
ortho-Anisaldehyde	0.02	Simple phenolic
Phenylethyl acetate	0.02	Phenolic ester
Chavicol	0.09	Phenylpropanoid
(*E*)-Cinnamal	1.45	Phenylpropanoid
Safrole	0.90	Phenylpropanoid
(*E*)-Cinnamyl alcohol	0.13	Phenylpropanoid
Carvacrol	0.01	Monoterpenic alcohol
α-Cubebene	0.03	Sesquiterpene
Eugenol	75.33	Phenylpropanoid
ortho-Methoxyhydrocinnamal?	0.02	Phenylpropanoid
Hydrocinnamyl acetate	0.08	Phenylpropanoid ester
α-Copaene	0.54	Sesquiterpene
β-Cubebene	0.01	Sesquiterpene
β-Elemene	0.07	Sesquiterpene
α-Gurjunene	0.01	Sesquiterpene
Methyleugenol	0.04	Phenylpropanoid
β-Caryophyllene	3.03	Sesquiterpene
Caryophylla-4(12),8(13)-diene	0.01	Sesquiterpene
(*E*)-Cinnamyl acetate	1.24	Phenylpropanoid ester
(*E*)-Isoeugenol	0.02	Phenylpropanoid
α-Humulene	0.51	Sesquiterpene
allo-Aromadendrene	0.01	Sesquiterpene
trans-Cadina-1(6),4-diene	0.01	Sesquiterpene
γ-Muurolene	0.02	Sesquiterpene
Unknown	0.02	Sesquiterpene
ar-Curcumene	0.01	Sesquiterpene
Bicyclogermacrene	0.03	Sesquiterpene
Viridiflorene	0.06	Sesquiterpene
α-Muurolene	0.01	Sesquiterpene
Cubebol	0.01	Sesquiterpenic alcohol
γ-Cadinene	0.04	Sesquiterpene
trans-Calamenene	0.03	Sesquiterpene
δ-Cadinene	0.11	Sesquiterpene
Eugenyl acetate	1.58	Phenylpropanoid ester

α-Calacorene	0.01	Sesquiterpene
Isocaryophyllene epoxide B	0.02	Sesquiterpenic ether
Unknown	0.06	Phenylpropanoid
Caryophyllenyl alcohol	0.01	Sesquiterpenic alcohol
Spathulenol	0.09	Sesquiterpenic alcohol
Caryophyllene oxide	0.55	Sesquiterpenic ether
Caryophyllene oxide isomer	0.02	Sesquiterpenic ether
Humulene epoxide II	0.10	Sesquiterpenic ether
Tetradecanal	0.03	Aliphatic aldehyde
10-epi-Cubenol?	0.02	Sesquiterpenic alcohol
Caryophylladienol I	0.01	Sesquiterpenic alcohol
Caryophylladienol II	0.03	Sesquiterpenic alcohol
τ-Cadinol	0.02	Sesquiterpenic alcohol
τ-Muurolol	0.02	Sesquiterpenic alcohol
α-Cadinol	0.01	Sesquiterpenic alcohol
(3*Z*)-Caryophylla-3,8(13)-dien-5β-ol	0.05	Sesquiterpenic alcohol
(*E*)-Coniferyl alcohol	0.11	Phenylpropanoid
Benzyl benzoate	3.34	Phenolic ester
Phenylethyl benzoate	0.03	Phenolic ester
Unknown	0.03	Unknown
Unknown	0.01	Unknown
Unknown	0.01	Unknown
Unknown	0.08	Unknown
Unknown	0.26	Lignan
Unknown	0.10	Lignan
Unknown	0.17	Unknown
Unknown	0.04	Unknown
Consolidated total	**98.52**	

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

Note: no correction factor was applied

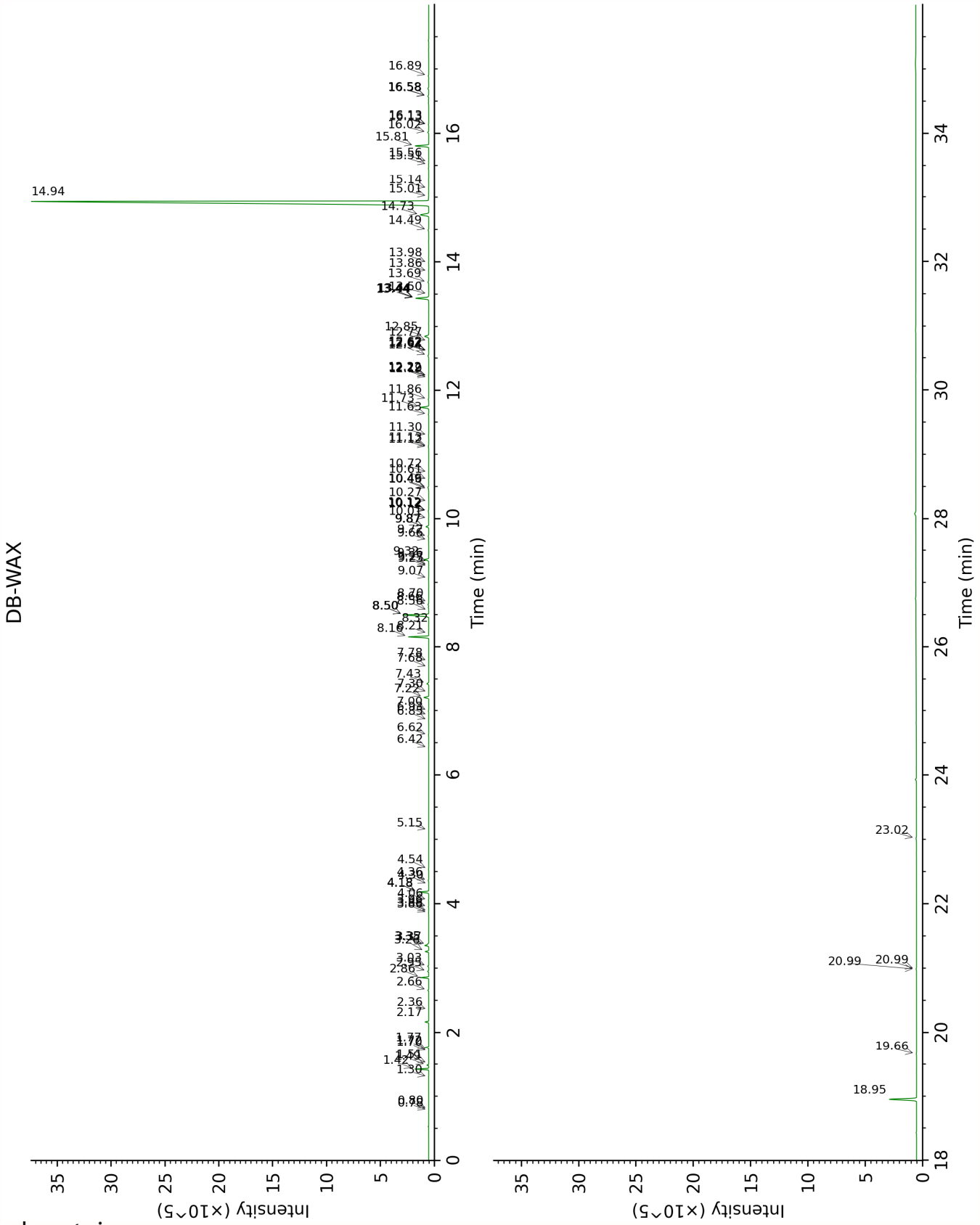
About "consolidated" data: The table above presents the breakdown of the sample volatile constituents after applying an algorithm to collapse data acquired from the multi-columns system of PhytoChemia into a single set of consolidated contents. In case of discrepancies between columns, the algorithm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

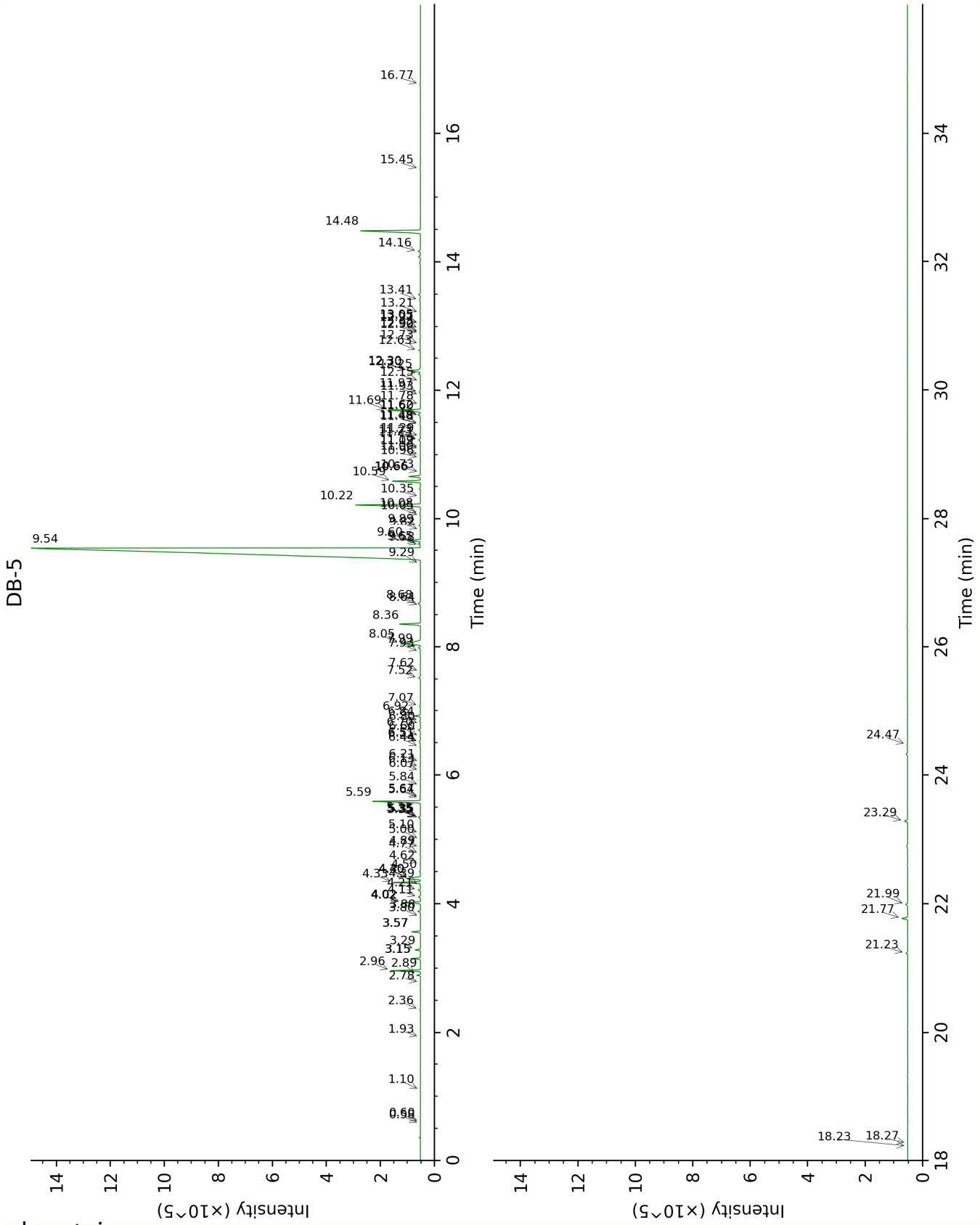
Unknowns: Unknown compounds' mass spectral data is presented in the "Full analysis data" table. The occurrence of unknown compounds is to be expected in many samples, and does not denote particular problems unless noted otherwise in the conclusion.

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)
14.94
16.89
16.58
15.81
15.14
15.01
14.73
14.49
13.98
13.86
13.69
12.85
11.86
11.73
11.63
11.30
10.72
10.27
9.87
9.07
8.70
8.50
8.32
8.16
7.78
7.68
7.43
7.30
7.22
7.00
6.85
6.62
6.42
5.15
4.54
4.18
4.06
3.03
2.86
2.66
2.36
2.17
1.42
1.30
0.80
0.78
23.02
20.99
20.99
19.66
18.95


DB-5
Time (min)
Intensity (×10^5)
16.77
15.45
14.48
14.16
13.41
13.21
12.63
12.30
11.69
10.59
10.35
10.22
9.54
9.29
8.36
8.05
7.62
7.52
7.07
5.84
5.59
4.02
3.57
3.29
3.15
2.96
2.89
2.78
2.36
1.93
1.10
24.47
23.29
21.99
21.77
21.23
18.23
18.27

FULL ANALYSIS DATA

	Column DB-WAX			Column DB-5		
Isovaleral	0.80	888.3	tr	0.58	644.1	tr
2-Methylbutyral	0.78	880.7	tr	0.60	654.5	tr
Toluene	1.51	1002.0	tr	1.10	760.0	tr
Ethyl 2-methylbutyrate	1.72	1022.6	tr	1.93	850.5	tr
Styrene	3.96	1211.4	0.03	2.36	887.0	0.02
Tricyclene	1.30	972.0	0.01	2.78	919.1	0.01
α-Thujene	1.48	999.3	0.12	2.89	926.7	0.12
α-Pinene	1.42	991.3	1.01	2.96	931.5	1.00
α-Fenchene	1.70	1020.2	0.01	3.15*	944.1	[0.35]
Camphene	1.77	1026.7	0.33	3.15*	944.1	[0.35]
Benzaldehyde	7.43	1462.5	0.20	3.28	953.1	0.19
Sabinene	2.36	1084.5	0.01	3.57*	972.1	[0.32]
β-Pinene	2.17	1065.9	0.31	3.57*	972.1	[0.32]
6-Methyl-5-hepten-2-one	5.15	1298.6	0.01	3.80	988.0	tr
Myrcene	2.95	1133.4	0.09	3.88	993.5	0.10
Octanal	4.54	1254.1	0.02	4.02*	1002.7	[0.68]
α-Phellandrene	2.86	1126.0	0.67	4.02*	1002.7	[0.68]
Δ3-Carene	2.66	1110.4	0.08	4.11	1008.3	0.08
α-Terpinene	3.03	1139.8	0.08	4.22	1015.2	0.09
meta-Cymene	4.18*	1228.0	[1.02]	4.30	1020.4	0.02
para-Cymene	4.18*	1228.0	[1.02]	4.33	1022.7	1.01
Limonene	3.26	1157.6	0.31	4.39†	1026.3	0.36
1,8-Cineole	3.37	1166.1	0.10	4.40*†	1027.2	[0.44]
β-Phellandrene	3.35	1165.1	0.38	4.40*†	1027.2	[0.44]
Benzyl alcohol	11.86	1816.9	0.05	4.50	1033.3	0.04
(*Z*)-β-Ocimene	3.86	1204.1	0.02	4.62	1041.1	0.02
(*E*)-β-Ocimene	4.06	1218.9	0.02	4.77	1050.8	0.02
γ-Terpinene	3.88	1205.9	0.01	4.89	1057.9	0.01
cis-Sabinene hydrate	6.93	1425.9	0.01	5.00	1065.3	0.01
cis-Linalool oxide (fur.)	6.62	1403.4	0.02	5.10	1071.4	0.02
Isoterpinolene	4.30	1236.5	0.01	5.32	1085.9	0.01
Terpinolene	4.36	1241.0	0.05	5.35*	1087.2	[0.09]
trans-Linalool oxide (fur.)	7.00	1430.7	0.03	5.35*	1087.2	[0.09]
para-Cymenene	6.42	1388.6	0.02	5.35*	1087.2	[0.09]
Linalool	8.16	1516.8	2.05	5.59	1103.0	2.05
(3*E*)-2,7-Dimethyl-3,6-octadien-2-ol	8.32	1529.1	0.01	5.64	1106.0	0.02
Phenylethyl alcohol	12.22*	1848.9	[0.03]	5.67	1107.7	0.02
cis-para-Menth-2-en-1-ol	8.21	1520.8	0.02	5.84	1119.2	0.01
trans-Pinocarveol	9.25	1600.8	0.01	6.07	1134.3	0.01
Camphor	7.30	1452.6	0.01	6.13	1137.7	0.02
Camphene hydrate	8.56	1547.9	0.01	6.21	1143.0	0.01

Hydrocinnamal	10.61	1710.8	0.03	6.44	1158.0	0.03
Benzyl acetate	10.12*	1670.9	[0.08]	6.51*	1162.7	[0.08]
Borneol	9.87*	1650.5	[0.30]	6.51*	1162.7	[0.08]
3-Methylbenzofuran?	10.27	1682.6	0.01	6.60	1168.7	0.02
Terpinen-4-ol	8.66	1555.3	0.08	6.70	1175.0	0.09
Cryptone	9.27	1602.4	0.01	6.80	1181.4	0.01
para-Cymen-8-ol	11.63	1796.5	0.04	6.84	1184.1	0.04
α-Terpineol	9.87*	1650.5	[0.30]	6.92	1189.4	0.24
cis-α-Phellandrene epoxide (iPr vs Me)	11.12	1753.3	0.04	7.07	1199.4	0.04
Hydrocinnamyl alcohol	13.68	1981.5	0.09	7.52	1229.6	0.10
ortho-Anisaldehyde	12.62*	1883.9	[0.01]	7.62	1236.5	0.02
Phenylethyl acetate	11.13	1754.5	0.03	7.93	1257.5	0.02
Chavicol	16.58*	2268.9	[0.12]	7.99	1261.7	0.09
(*E*)-Cinnamal	13.44*	1958.7	[1.55]	8.05†	1266.1	1.11
Safrole	11.74	1806.1	0.91	8.36	1287.1	0.90
(*E*)-Cinnamyl alcohol	16.02	2210.9	0.11	8.68	1304.7	0.13
Carvacrol	15.51	2159.5	0.02	8.64	1306.6	0.01
α-Cubebene	6.85	1420.1	0.02	9.29	1348.3	0.03
Eugenol	14.94	2101.7	75.23	9.54	1366.3	75.33
ortho-Methoxyhydrocinnamal?	13.98	2010.0	0.03	9.58	1369.1	0.02
Hydrocinnamyl acetate	12.54	1876.5	0.10	9.60	1371.1	0.08
α-Copaene	7.22	1447.0	0.54	9.66	1374.7	0.54
β-Cubebene	7.78	1488.4	0.01	9.82	1386.3	0.01
β-Elemene	8.50*	1542.9	[3.05]	9.89	1391.6	0.07
α-Gurjunene	7.68	1481.1	0.01	10.05	1402.9	0.01
Methyleugenol	13.44*	1958.7	[1.55]	10.08	1405.4	0.04
β-Caryophyllene	8.50*	1542.9	[3.05]	10.22	1415.5	3.03
Caryophylla-4(12),8(13)-diene	8.70	1558.0	0.01	10.35	1425.6	0.01
(*E*)-Cinnamyl acetate	14.73	2081.0	1.26	10.59	1443.4	1.24
(*E*)-Isoeugenol	16.58*	2268.9	[0.12]	10.66*	1448.9	[0.53]
α-Humulene	9.36	1609.5	0.51	10.66*	1448.9	[0.53]
allo-Aromadendrene	9.07	1586.4	0.01	10.73	1453.9	0.01
trans-Cadina-1(6),4-diene	9.32	1606.3	0.01	10.96	1471.0	0.01
γ-Muurolene	9.66	1633.6	0.02	11.00	1474.5	0.02
Unknown BOSE VII [m/z 91, 93 (92), 105 (71), 77 (69), 79 (68), 133 (63)... 204 (32)]	10.01	1661.8	0.02	11.09	1481.3	0.02
ar-Curcumene	10.72	1720.3	0.02	11.12	1483.6	0.01
Bicyclogermacrene	10.12*	1670.9	[0.08]	11.23*	1491.6	[0.10]
Viridiflorene	9.72	1638.3	0.06	11.23*	1491.6	[0.10]

α-Muurolene	10.12*	1670.9	[0.08]	11.29	1496.3	0.01
Cubebol	12.62*	1883.9	[0.01]	11.48*	1510.6	[0.05]
γ-Cadinene	10.46	1698.5	0.04	11.48*	1510.6	[0.05]
trans-Calamenene	11.30	1769.1	0.03	11.60	1520.3	0.03
δ-Cadinene	10.49	1700.7	0.11	11.62	1521.8	0.11
Eugenyl acetate	15.81	2189.0	1.57	11.69	1527.6	1.58
α-Calacorene	12.19	1846.2	0.01	11.78	1534.7	0.01
Isocaryophyllene epoxide B	12.22*	1848.9	[0.03]	11.93	1546.3	0.02
Unknown SYAR III [m/z 180, 93 (70), 55 (62), 77 (55), 164 (55), 103 (50)]	20.99*	2778.2	[0.06]	11.97	1549.6	0.06
Caryophyllenyl alcohol	13.86	1997.7	0.02	12.15	1563.5	0.01
Spathulenol	14.49	2058.3	0.08	12.25	1571.9	0.09
Caryophyllene oxide	12.85	1904.6	0.55	12.30*	1575.9	[0.61]
Caryophyllene oxide isomer	12.77	1897.7	0.02	12.30*	1575.9	[0.61]
Humulene epoxide II	13.44*	1958.7	[1.55]	12.63	1601.6	0.10
Tetradecanal	12.62*	1883.9	[0.01]	12.73	1610.2	0.03
10-epi-Cubenol?	13.50	1964.8	0.01	12.90	1623.8	0.02
Caryophylladienol I	16.13*	2222.9	[0.03]	12.92	1626.0	0.01
Caryophylladienol II	16.13*	2222.9	[0.03]	12.97	1629.9	0.03
τ-Cadinol	15.01	2109.5	0.02	13.05*	1636.8	[0.03]
τ-Muurolol	15.14	2121.7	0.02	13.05*	1636.8	[0.03]
α-Cadinol	15.56	2164.1	0.02	13.21	1650.0	0.01
(3*Z*)-Caryophylla-3,8(13)-dien-5β-ol	16.89	2302.4	0.05	13.41	1666.5	0.05
(*E*)-Coniferyl alcohol	23.02	3047.3	0.09	14.16	1730.2	0.11
Benzyl benzoate	18.95	2531.6	3.34	14.48	1757.9	3.34
Phenylethyl benzoate	19.66	2615.3	0.03	15.45	1844.2	0.03
Unknown CIZE I [m/z 93, 92 (57), 136 (34), 91 (23), 77 (13), 134 (11)...]				16.77	1966.8	0.03
Unknown CIZE II [m/z 69, 91 (57), 41 (49), 181 (32), 169 (25), 167 (22)...]	20.99*	2778.2	[0.06]	18.23	2110.5	0.01
Unknown CIZE III [m/z 69, 91 (56), 41 (49), 169 (34), 239 (28), 93 (23)...]				18.27	2115.2	0.01
Unknown CIZE IV [m/z 151, 93 (44), 153 (29), 92 (21), 179 (18)... 314? (10)]				21.23	2435.5	0.08
Unknown OCSA V [m/z 326, 148 (67), 147 (41), 117 (30), 91 (22)...]				21.77	2497.9	0.26

Unknown CIZE V [m/z 326, 150 (54), 161 (42), 202 (41), 201 (28)]				21.99	2523.8	0.10
Unknown SYAR VIII [m/z 164, 165 (12), 55 (11), 81 (10), 69 (10), 95 (10)...]				23.28	2681.4	0.17
Unknown CIZE VI [m/z 137, 166 (86), 177 (80), 138 (72), 342 (37), 178 (12)...]				24.47	2834.2	0.04
Total reported	97.63%			98.53%		

*: 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