Date : 2025-02-14

Certificate of Analysis - GC Profiling

Sample Identification

Internal code : 25B03-PTH01
Customer Identification : Basil Linalool - Hungary - B10112R
Type : Essential Oil
Source : *Ocimum basilicum ct. Linalool*
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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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.

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 : Sylvain Mercier, M. Sc., Chimiste 2014-005
Date : 2025-02-12

Physicochemical data

Refractive index : 1.4763 ± 0.0003 (20 °C)
Method : PC-MAT-016 - Measure of the refractive index of a liquid.
Analyst : Cindy Caron B. Sc.
Date : 2025-02-03

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
Isovaleral	0.01	Aliphatic aldehyde
2-Methylbutyral	tr	Aliphatic aldehyde
2-Ethylfuran	0.01	Furan
Isoamyl alcohol	0.01	Aliphatic alcohol
2-Methylbutanol	tr	Aliphatic alcohol
(3*Z*)-Hexenol	0.01	Aliphatic alcohol
Hashishene	0.01	Monoterpene
α-Thujene	0.05	Monoterpene
α-Pinene	0.53	Monoterpene
Camphene	0.11	Monoterpene
Benzaldehyde	0.01	Simple phenolic
β-Pinene	1.01	Monoterpene
Sabinene	0.48	Monoterpene
Octen-3-ol	0.04	Aliphatic alcohol
Octan-3-one	0.03	Aliphatic ketone
6-Methyl-5-hepten-2-one	0.01	Aliphatic ketone
Myrcene	0.92	Monoterpene
Pseudolimonene	0.01	Monoterpene
α-Phellandrene	0.02	Monoterpene
Δ3-Carene	0.01	Monoterpene
(3*Z*)-Hexenyl acetate	0.04	Aliphatic ester
α-Terpinene	0.06	Monoterpene
para-Cymene	0.16	Monoterpene
Limonene	0.41	Monoterpene
1,8-Cineole	9.01	Monoterpenic ether
(*Z*)-β-Ocimene	0.06	Monoterpene
(*E*)-β-Ocimene	0.53	Monoterpene
γ-Terpinene	0.06	Monoterpene
cis-Sabinene hydrate	0.14	Monoterpenic alcohol
cis-Linalool oxide (fur.)	0.05	Monoterpenic alcohol
Octanol	0.06	Aliphatic alcohol
Terpinolene	0.12	Monoterpene
trans-Linalool oxide (fur.)	0.05	Monoterpenic alcohol
para-Cymenene	0.01	Monoterpene
6,7-Epoxymyrcene	0.03	Monoterpenic ether
Linalool	49.28	Monoterpenic alcohol
Hotrienol	0.06	Monoterpenic alcohol
Phenylethyl alcohol	0.03	Simple phenolic
Octen-3-yl acetate	0.06	Aliphatic ester
cis-para-Menth-2-en-1-ol	0.02	Monoterpenic alcohol

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

Limona ketone	0.01	Normonoterpenic ketone
(*Z*)-Myroxide	0.02	Monoterpenic ether
Camphor	0.52	Monoterpenic ketone
(*E*)-Myroxide	0.18	Monoterpenic ether
Isomenthone	0.08	Monoterpenic ketone
Borneol	0.13	Monoterpenic alcohol
δ-Terpineol	0.16	Monoterpenic alcohol
Terpinen-4-ol	0.48	Monoterpenic alcohol
para-Cymen-8-ol	0.03	Monoterpenic alcohol
α-Terpineol	0.87	Monoterpenic alcohol
Methylchavicol	0.73	Phenylpropanoid
(3*E*,5*E*)-2,6-Dimethylocta-3,5,7-trien-2-ol	0.06	Monoterpenic alcohol
Octyl acetate	0.24	Aliphatic ester
Nerol	0.02	Monoterpenic alcohol
Citronellol	0.41	Monoterpenic alcohol
Carvone	0.02	Monoterpenic ketone
Geraniol	0.24	Monoterpenic alcohol
Citronellyl formate	0.11	Monoterpenic ester
Bornyl acetate	1.01	Monoterpenic ester
Lavandulyl acetate	0.02	Monoterpenic ester
trans-Pinocarvyl acetate	0.03	Monoterpenic ester
Geranyl formate	0.04	Monoterpenic ester
ex*o*-2-Hydroxycineole acetate	0.09	Monoterpenic ester
α-Terpinyl acetate	0.04	Monoterpenic ester
α-Cubebene	0.06	Sesquiterpene
Eugenol	5.42	Phenylpropanoid
Neryl acetate	0.04	Monoterpenic ester
α-Copaene	0.18	Sesquiterpene
β-Bourbonene	0.28	Sesquiterpene
cis-β-Elemene	0.10	Sesquiterpene
Geranyl acetate	0.03	Monoterpenic ester
β-Cubebene	0.09	Sesquiterpene
β-Elemene	2.16	Sesquiterpene
Unknown	0.10	Unknown
Methyleugenol	0.15	Phenylpropanoid
β-Caryophyllene	0.38	Sesquiterpene
β-Copaene	0.06	Sesquiterpene
β-Gurjunene	0.19	Sesquiterpene
α-Guaiene	[5.49]	Sesquiterpene
trans-α-Bergamotene	[5.49]	Sesquiterpene
cis-Muurola-3,5-diene	0.05	Sesquiterpene
cis-β-Bergamotene?	0.16	Sesquiterpene
Cadina-4,11-diene	0.02	Sesquiterpene
α-Humulene	0.73	Sesquiterpene
all*o*-Aromadendrene	0.06	Sesquiterpene

(*E*)-β-Farnesene	0.13	Sesquiterpene
cis-Muurola-4(15),5-diene	0.47	Sesquiterpene
γ-Gurjunene	0.02	Sesquiterpene
Germacrene D	2.64	Sesquiterpene
allo-Aromadendr-9-ene	0.04	Sesquiterpene
trans-β-Bergamotene	0.34	Sesquiterpene
β-Selinene	0.12	Sesquiterpene
Viridiflorene	0.03	Sesquiterpene
Bicyclogermacrene	0.86	Sesquiterpene
(*Z*)-α-Bisabolene	0.60	Sesquiterpene
δ-Guaiene	1.12	Sesquiterpene
γ-Cadinene	2.41	Sesquiterpene
trans-Calamenene	0.24	Sesquiterpene
δ-Cadinene	0.16	Sesquiterpene
β-Sesquiphellandrene	0.18	Sesquiterpene
trans-Cadina-1,4-diene	0.02	Sesquiterpene
10-epi-Cubebol?	0.09	Sesquiterpenic alcohol
α-Cadinene	0.07	Sesquiterpene
cis-Muurol-5-en-4α-ol	0.03	Sesquiterpenic alcohol
Salviadienol?	0.03	Sesquiterpenic alcohol
Maaliol	0.16	Sesquiterpenic alcohol
(*E*)-Nerolidol	0.13	Sesquiterpenic alcohol
Spathulenol	0.24	Sesquiterpenic alcohol
Caryophyllene oxide	0.01	Sesquiterpenic ether
Globulol	0.03	Sesquiterpenic alcohol
Viridiflorol	0.02	Sesquiterpenic alcohol
Humulene epoxide II	0.03	Sesquiterpenic ether
1,10-diepi-Cubenol	0.44	Sesquiterpenic alcohol
10-epi-γ-Eudesmol	0.10	Sesquiterpenic alcohol
τ-Cadinol	2.30	Sesquiterpenic alcohol
β-Eudesmol	0.12	Sesquiterpenic alcohol
α-Cadinol	0.11	Sesquiterpenic alcohol
(3*Z*)-Caryophylla-3,8(13)-dien-5β-ol	0.05	Sesquiterpenic alcohol
Eudesma-4(15),7-dien-1β-ol	0.02	Sesquiterpenic alcohol
α-Bisabolol	0.04	Sesquiterpenic alcohol
Geranyl tiglate	0.06	Monoterpenic ester
Unknown	0.03	Oxygenated sesquiterpene
Mint sulfide	0.02	Sesquiterpenic sulfide
Phytone	0.04	Terpenic ketone
Unknown	0.07	Lignan
Dehydrodieugenol	0.04	Lignan
Consolidated total	**98.48**	

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.

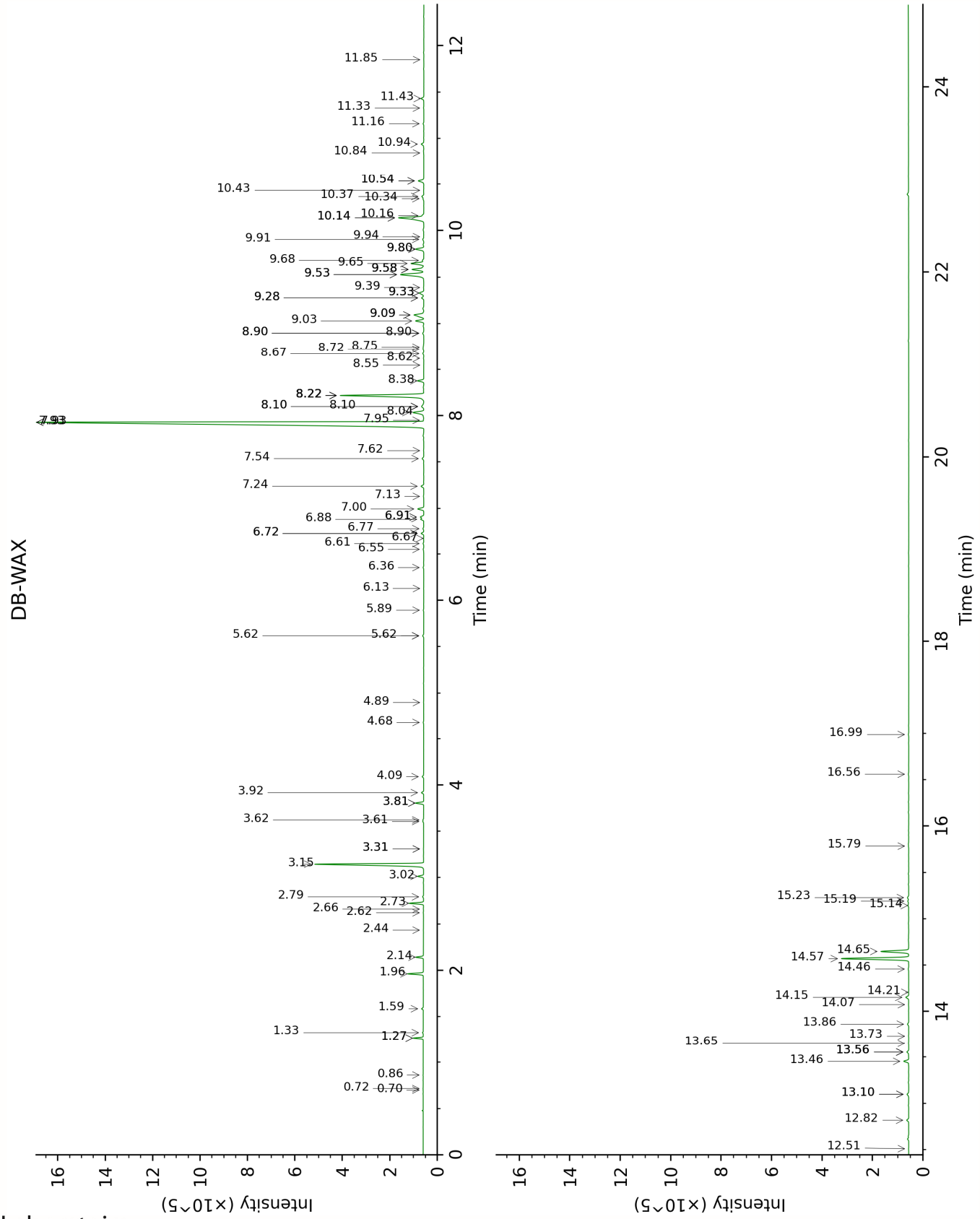
Unknowns: Unknown compounds' mass spectral data is presented in the "Full analysis data" table. The occurrence of unknown compounds is to be expected in many samples, and does not denote particular problems unless noted otherwise in the conclusion.

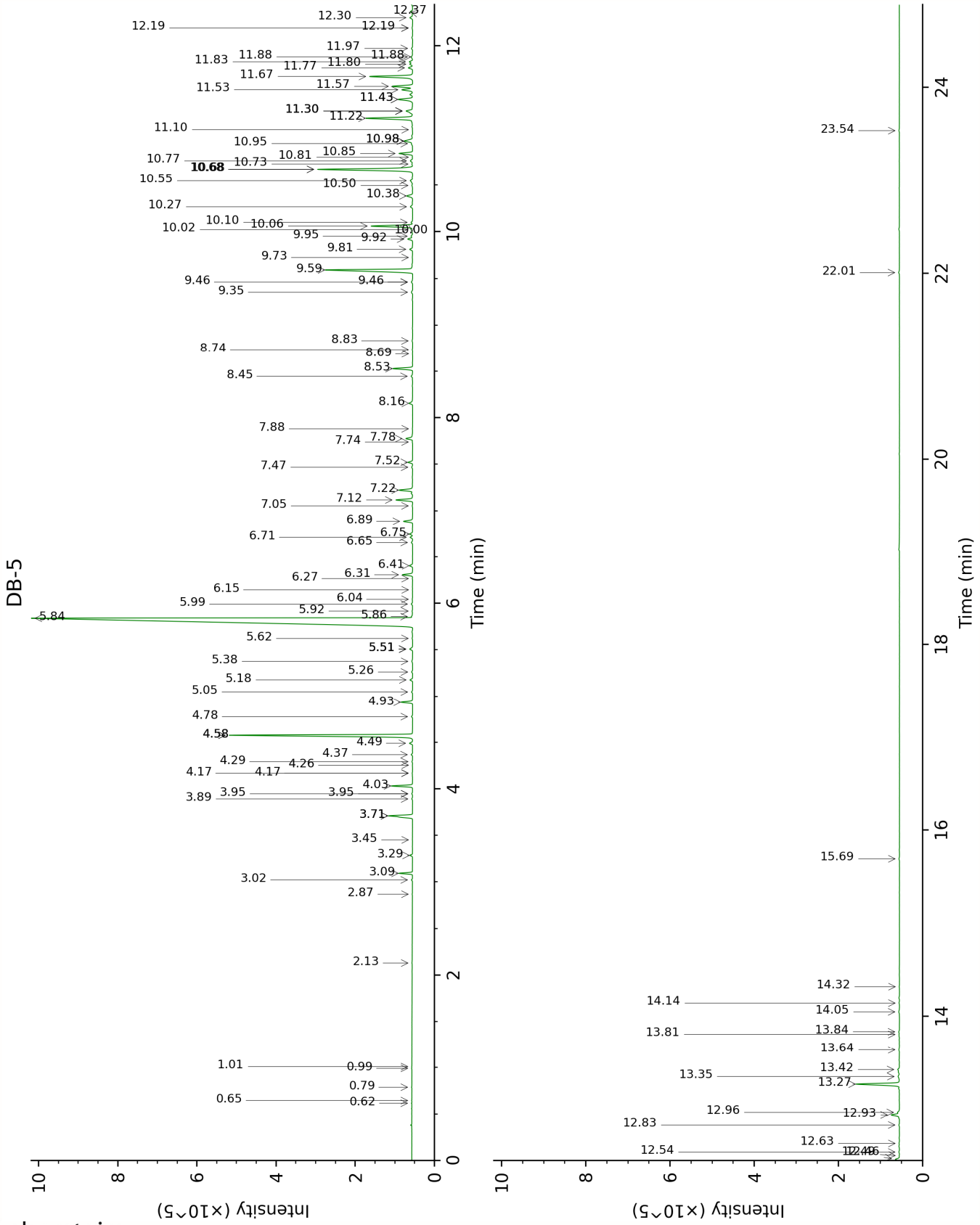
Bracketed value ([xx]): A bracketed percent value indicate that two or more compound percentage could not be solved due to coelution.

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

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)
11.85
11.43
11.33
11.16
10.94
10.84
10.54
10.43
10.37
10.34
10.14
10.16
9.91
9.94
9.80
9.68
9.65
9.58
9.53
9.39
9.33
9.28
9.09
9.03
8.90
8.90
8.72
8.75
8.67
8.62
8.55
8.38
8.22
8.10
8.10
8.04
7.95
7.62
7.54
7.24
7.13
7.00
6.91
6.88
6.77
6.72
6.67
6.61
6.55
6.36
6.13
5.89
5.62
5.62
4.89
4.68
4.09
3.92
3.81
3.62
3.61
3.31
3.15
3.02
2.79
2.73
2.66
2.62
2.44
2.14
1.96
1.59
1.33
1.27
0.86
0.72
0.70
16.99
16.56
15.79
15.23
15.19
15.14
14.65
14.57
14.46
14.21
14.15
14.07
13.86
13.73
13.65
13.56
13.46
13.10
12.82
12.51


DB-5
Time (min)
Intensity (×10^5)
12.37
12.30
12.19
12.19
11.97
11.88
11.83
11.88
11.77
11.80
11.67
11.57
11.53
11.43
11.30
11.22
11.10
10.98
10.95
10.85
10.81
10.77
10.73
10.68
10.55
10.50
10.38
10.27
10.10
10.06
10.02
10.00
9.95
9.92
9.81
9.73
9.59
9.46
9.46
9.35
8.83
8.74
8.69
8.53
8.45
8.16
7.88
7.78
7.74
7.52
7.47
7.22
7.12
7.05
6.89
6.75
6.71
6.65
6.41
6.31
6.27
6.15
6.04
5.99
5.92
5.86
5.84
5.62
5.51
5.38
5.26
5.18
5.05
4.93
4.78
4.58
4.49
4.37
4.29
4.26
4.17
4.17
4.03
3.95
3.95
3.89
3.71
3.45
3.29
3.09
3.02
2.87
2.13
1.01
0.99
0.79
0.65
0.62
23.54
22.01
15.69
14.32
14.14
14.05
13.84
13.81
13.64
13.42
13.35
13.27
12.96
12.93
12.83
12.63
12.54

FULL ANALYSIS DATA

Isovaleral	Column DB-WAX			Column DB-5		
	0.72	888.2	0.01	0.62	641.0	0.01
2-Methylbutyral	0.70	881.8	tr	0.65	651.3	tr
2-Ethylfuran	0.86	921.0	tr	0.79	701.7	0.01
Isoamyl alcohol	3.31*	1180.5	[0.01]	0.99	733.3	0.01
2-Methylbutanol	3.31*	1180.5	[0.01]	1.01	736.0	tr
(3*Z*)-Hexenol	5.62*	1350.9	[0.09]	2.13	858.1	0.01
Hashishene	1.27*	990.3	[0.54]	2.87	916.8	0.01
α-Thujene	1.33	1000.5	0.04	3.02	927.0	0.05
α-Pinene	1.27*	990.3	[0.54]	3.09	931.7	0.53
Camphene	1.59	1027.1	0.11	3.29	944.4	0.11
Benzaldehyde	7.13	1461.8	0.03	3.45	955.5	0.01
β-Pinene	1.96	1065.3	1.01	3.71*	972.6	[1.47]
Sabinene	2.14	1083.6	0.48	3.71*	972.6	[1.47]
Octen-3-ol	6.61	1423.3	0.05	3.89	984.6	0.04
Octan-3-one	3.81*	1218.8	[0.56]	3.95*	988.3	[0.04]
6-Methyl-5-hepten-2-one	4.89	1299.4	0.01	3.95*	988.3	[0.04]
Myrcene	2.72	1133.8	0.92	4.03	993.8	0.92
Pseudolimonene	2.66	1128.8	0.01	4.17*	1002.9	[0.02]
α-Phellandrene	2.62	1125.7	0.02	4.17*	1002.9	[0.02]
Δ3-Carene	2.44	1110.8	0.01	4.26	1008.5	0.01
(3*Z*)-Hexenyl acetate	4.68	1283.4	0.04	4.29	1010.8	0.04
α-Terpinene	2.79	1139.3	0.07	4.37	1015.5	0.06
para-Cymene	3.92	1227.2	0.16	4.49	1023.2	0.16
Limonene	3.02	1157.0	0.41	4.58*	1028.6	[9.40]
1,8-Cineole	3.15	1167.4	9.01	4.58*	1028.6	[9.40]
(*Z*)-β-Ocimene	3.61	1204.2	0.05	4.78	1041.1	0.06
(*E*)-β-Ocimene	3.81*	1218.8	[0.56]	4.93	1050.8	0.53
γ-Terpinene	3.62	1205.4	0.05	5.05	1058.1	0.06
cis-Sabinene hydrate	6.72*	1431.4	[0.20]	5.18	1066.2	0.14
cis-Linalool oxide (fur.)	6.36	1404.0	0.05	5.26	1071.6	0.05
Octanol	7.93*	1522.1	[49.14]	5.38	1078.7	0.06
Terpinolene	4.09	1240.0	0.12	5.51*	1087.0	[0.18]
trans-Linalool oxide (fur.)	6.72*	1431.4	[0.20]	5.51*	1087.0	[0.18]
para-Cymenene	6.13	1387.7	0.01	5.51*	1087.0	[0.18]
6,7-Epoxymyrcene	5.90	1370.9	0.04	5.62	1094.2	0.03
Linalool	7.93*	1522.1	[49.14]	5.84	1107.8	49.28
Hotrienol	8.62	1575.8	0.03	5.86	1108.9	0.06
Phenylethyl alcohol	11.85	1845.6	0.02	5.92	1112.7	0.03

Octen-3-yl acetate	5.62*	1350.9	[0.09]	5.99	1117.5	0.06
cis-para-Menth-2-en-1-ol	7.95	1523.8	0.03	6.04	1120.7	0.02
Limona ketone	7.62	1498.5	0.02	6.15	1127.2	0.01
(*Z*)-Myroxide	6.67	1427.5	0.02	6.27	1134.9	0.02
Camphor	7.00	1451.6	0.51	6.31	1137.5	0.52
(*E*)-Myroxide	6.88*†	1443.3	[0.24]	6.40	1143.8	0.18
Isomenthone	6.77	1435.2	0.08	6.65	1159.7	0.08
Borneol	9.58*	1652.9	[1.11]	6.71	1163.2	0.13
δ-Terpineol	9.28*	1628.0	[0.20]	6.74	1165.5	0.16
Terpinen-4-ol	8.38	1556.9	0.49	6.89	1174.6	0.48
para-Cymen-8-ol	11.33	1799.2	0.04	7.06	1185.2	0.03
α-Terpineol	9.58*	1652.9	[1.11]	7.12	1189.3	0.87
Methylchavicol	9.09*	1613.1	[1.20]	7.22	1196.0	0.73
(3*E*,5*E*)-2,6-Dimethylocta-3,5,7-trien-2-ol	11.16	1784.8	0.06	7.47	1212.0	0.06
Octyl acetate	6.91*†	1445.1	[0.29]	7.52	1215.5	0.24
Nerol	10.84	1757.9	0.02	7.74	1230.1	0.02
Citronellol	10.54*	1731.7	[0.52]	7.78	1232.6	0.41
Carvone	9.80*	1670.6	[0.76]	7.88	1239.6	0.02
Geraniol	11.43	1808.4	0.24	8.16	1257.9	0.24
Citronellyl formate	8.67	1579.8	0.09	8.45	1277.3	0.11
Bornyl acetate	8.04	1530.3	1.14	8.53	1282.9	1.01
Lavandulyl acetate	8.55	1570.0	tr	8.69	1293.6	0.02
trans-Pinocarvyl acetate	8.90*	1597.3	[0.11]	8.74	1296.8	0.03
Geranyl formate	9.68	1660.7	0.12	8.83	1303.2	0.04
exo-2-Hydroxycineole acetate	9.91	1679.2	0.11	9.35	1339.8	0.09
α-Terpinyl acetate	9.53*	1648.4	[2.70]	9.46*	1347.5	[0.09]
α-Cubebene	6.55	1418.7	0.06	9.46*	1347.5	[0.09]
Eugenol	14.57	2100.2	5.44	9.59	1356.6	5.42
Neryl acetate	9.94	1681.5	0.02	9.73	1366.0	0.04
α-Copaene	6.91*†	1445.1	[0.29]	9.81	1372.2	0.18
β-Bourbonene	7.24	1469.9	0.24	9.92	1379.9	0.28
cis-β-Elemene	8.10*	1535.3	[0.28]	9.95	1382.0	0.10
Geranyl acetate	10.37	1717.4	0.18	10.00	1385.3	0.03
β-Cubebene	7.54	1492.1	0.15	10.02	1387.0	0.09
β-Elemene	8.22*	1544.6	[7.71]	10.06	1389.7	2.16
Unknown OCSA I [m/z 161, 105 (83), 119 (69), 81 (34), 91 (29), 93 (28)...204]				10.10	1392.4	0.10

Methyleugenol	13.10*	1959.3	[0.16]	10.27	1404.3	0.15
β-Caryophyllene	8.22*	1544.6	[7.71]	10.38	1412.9	0.38
β-Copaene	8.10*	1535.3	[0.28]	10.50	1421.2	0.06
β-Gurjunene	8.10*	1535.3	[0.28]	10.55	1425.0	0.19
α-Guaiene	8.22*	1544.6	[7.71]	10.68*	1434.6	[5.49]
trans-α-Bergamotene	8.22*	1544.6	[7.71]	10.68*	1434.6	[5.49]
cis-Muurola-3,5-diene	8.72	1583.7	0.08	10.73	1438.8	0.05
cis-β-Bergamotene?				10.77	1441.3	0.16
Cadina-4,11-diene	8.90*	1597.3	[0.11]	10.81	1444.3	0.02
α-Humulene	9.03	1607.9	0.70	10.85	1447.3	0.73
allo-Aromadendrene	8.75	1585.6	0.08	10.95	1455.2	0.06
(*E*)-β-Farnesene	9.33*	1632.3	[0.49]	10.98*	1457.2	[0.60]
cis-Muurola-4(15),5-diene	9.09*	1613.1	[1.20]	10.98*	1457.2	[0.60]
γ-Gurjunene	8.90*	1597.3	[0.11]	11.10	1466.3	0.02
Germacrene D	9.53*	1648.4	[2.70]	11.22	1475.4	2.64
allo-Aromadendr-9-ene	9.28*	1628.0	[0.20]	11.30*	1481.2	[0.50]
trans-β-Bergamotene	9.33*	1632.3	[0.49]	11.30*	1481.2	[0.50]
β-Selinene	9.58*	1652.9	[1.11]	11.30*	1481.2	[0.50]
Viridiflorene	9.39	1637.1	0.03	11.43*	1490.5	[0.89]
Bicyclogermacrene	9.80*	1670.6	[0.76]	11.43*	1490.5	[0.89]
(*Z*)-α-Bisabolene	10.14*	1698.0	[2.84]	11.53	1498.2	0.60
δ-Guaiene	9.65	1658.1	1.16	11.57	1500.9	1.12
γ-Cadinene	10.14*	1698.0	[2.84]	11.67	1509.1	2.41
trans-Calamenene	10.94	1766.1	0.23	11.77	1516.3	0.24
δ-Cadinene	10.16	1699.9	0.10	11.80	1519.4	0.16
β-Sesquiphellandrene	10.34	1715.4	0.08	11.83	1521.4	0.18
trans-Cadina-1,4-diene	10.43	1723.0	0.02	11.88*	1525.5	[0.11]
10-epi-Cubebol?	13.56*	2001.9	[0.18]	11.88*	1525.5	[0.11]
α-Cadinene	10.54*	1731.7	[0.52]	11.98	1532.7	0.07
cis-Muurol-5-en-4α-ol	13.56*	2001.9	[0.18]	12.19*	1549.9	[0.05]
Salviadienol?	14.08	2052.1	0.03	12.19*	1549.9	[0.05]
Maaliol	12.82	1933.3	0.17	12.30	1558.6	0.16
(*E*)-Nerolidol	13.56*	2001.9	[0.18]	12.37	1563.7	0.13
Spathulenol	14.15	2059.7	0.26	12.46	1570.5	0.24
Caryophyllene oxide	12.51	1904.6	0.02	12.50	1573.5	0.01

Globulol	13.65	2011.3	0.03	12.54	1576.7	0.03
Viridiflorol	13.73	2019.1	0.02	12.63	1584.0	0.02
Humulene epoxide II	13.10*	1959.3	[0.16]	12.83	1599.6	0.03
1,10-diepi-Cubenol	13.46	1992.4	0.42	12.93	1608.2	0.44
10-epi-γ-Eudesmol	13.86	2031.6	0.11	12.96	1610.4	0.10
τ-Cadinol	14.65	2108.0	2.28	13.27	1635.6	2.30
β-Eudesmol	15.14	2157.9	0.08	13.35	1642.3	0.12
α-Cadinol	15.23	2166.4	0.13	13.42	1648.6	0.11
(3*Z*)-Caryophylla-3,8(13)-dien-5β-ol	16.56	2305.0	0.04	13.64	1666.2	0.05
Eudesma-4(15),7-dien-1β-ol	15.78	2223.4	0.02	13.81	1680.2	0.02
α-Bisabolol	15.19	2162.6	0.09	13.84	1682.6	0.04
Geranyl tiglate	14.21	2064.9	0.02	14.05	1700.3	0.06
Unknown UNKN CLXIX [m/z 93, 81 (90), 107 (83), 95 (75), 91 (71), 71 (70), 121 (68), 105 (68)... 220 (47)]	16.99	2351.5	0.03	14.14	1708.2	0.03
Mint sulfide				14.32	1723.5	0.02
Phytone	14.46	2089.2	0.06	15.69	1844.6	0.04
Unknown OCSA V [m/z 326, 148 (67), 147 (41), 117 (30), 91 (22)...]				22.01	2500.7	0.07
Dehydrodieugenol				23.54	2688.7	0.04
Total reported		97.50%			98.42%	

*: 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