Date : 2026-06-15

Certificate of Analysis - GC Profiling

Sample Identification

Internal code : 26E22-PTH11
Customer Identification : Laurel Leaf - Greece - L10113
Type : Essential Oil
Source : *Laurus nobilis*
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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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 2026-05-28 to make a modification in the sample identification section.

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 : 2026-05-28

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 : 2026-05-25

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
2-Methylbutyral	tr	Aliphatic aldehyde
1-Methylpyrrole	0.01	Pyrrole
Ethyl isobutyrate	0.01	Aliphatic ester
Toluene	tr	Simple phenolic
Hexanal	0.04	Aliphatic aldehyde
Ethyl 2-methylbutyrate	0.05	Aliphatic ester
Ethyl isovalerate	0.02	Aliphatic ester
(3*Z*)-Hexenol	0.04	Aliphatic alcohol
Isopropyl 2-methylbutyrate	0.02	Aliphatic ester
Isobutyl isobutyrate	0.02	Aliphatic ester
Tricyclene	0.01	Monoterpene
α-Thujene	0.19	Monoterpene
α-Pinene	6.03	Monoterpene
α-Fenchene	0.02	Monoterpene
Camphene	0.30	Monoterpene
Sabinene	7.31	Monoterpene
β-Pinene	3.62	Monoterpene
Dehydro-1,8-cineole	0.03	Monoterpenic ether
Myrcene	0.44	Monoterpene
α-Phellandrene	0.23	Monoterpene
Pseudolimonene	0.02	Monoterpene
Isobutyl 2-methylbutyrate	0.04	Aliphatic ester
Δ3-Carene	0.02	Monoterpene
α-Terpinene	0.34	Monoterpene
para-Cymene	1.85	Monoterpene
1,8-Cineole	37.05	Monoterpenic ether
Limonene	2.74	Monoterpene
(*Z*)-β-Ocimene	0.12	Monoterpene
(*E*)-β-Ocimene	0.14	Monoterpene
γ-Terpinene	1.24	Monoterpene
cis-Sabinene hydrate	0.03	Monoterpenic alcohol
cis-Linalool oxide (fur.)	0.01	Monoterpenic alcohol
Terpinolene	0.08	Monoterpene
para-Cymenene	0.02	Monoterpene
trans-Linalool oxide (fur.)	0.01	Monoterpenic alcohol
2-Nonanone	0.03	Aliphatic ketone
trans-Sabinene hydrate	0.02	Monoterpenic alcohol
Linalool	8.03	Monoterpenic alcohol
Hotrienol	0.02	Monoterpenic alcohol
cis-para-Menth-2-en-1-ol	0.02	Monoterpenic alcohol

trans-Pinocarveol	0.04	Monoterpenic alcohol
trans-para-Menth-2-en-1-ol	0.03	Monoterpenic alcohol
trans-Verbenol	0.03	Monoterpenic alcohol
Pinocarvone	0.02	Monoterpenic ketone
(*E*)-2,6-Dimethyl-1,5,7-octatrien-3-ol	0.03	Monoterpenic alcohol
Borneol	0.09	Monoterpenic alcohol
Terpinen-4-ol	2.37	Monoterpenic alcohol
para-Cymen-8-ol	0.02	Monoterpenic alcohol
trans-Isocarveol	0.01	Monoterpenic alcohol
Myrtenal	0.12	Monoterpenic aldehyde
α-Terpineol	2.18	Monoterpenic alcohol
Myrtenol	0.07	Monoterpenic alcohol
cis-Piperitol	0.03	Monoterpenic alcohol
Methylchavicol	0.15	Phenylpropanoid
Nerol	0.18	Monoterpenic alcohol
Linalyl acetate	0.09	Monoterpenic ester
Geraniol	0.02	Monoterpenic alcohol
4-Thujen-2α-yl acetate	0.02	Monoterpenic ester
Bornyl acetate	0.58	Monoterpenic ester
2-Undecanone	0.06	Aliphatic ketone
Thymol	0.02	Monoterpenic alcohol
δ-Terpinyl acetate	0.14	Monoterpenic ester
Unknown	0.02	Unknown
α-Cubebene	0.04	Sesquiterpene
α-Terpinyl acetate	13.78	Monoterpenic ester
Eugenol	2.38	Phenylpropanoid
Neryl acetate	0.06	Monoterpenic ester
α-Ylangene	0.02	Sesquiterpene
α-Copaene	0.02	Sesquiterpene
β-Elemene	0.08	Sesquiterpene
Methyleugenol	5.86	Phenylpropanoid
β-Caryophyllene	0.26	Sesquiterpene
(*E*)-Cinnamyl acetate	0.05	Phenylpropanoid ester
6,9-Guaiadiene	0.01	Sesquiterpene
α-Humulene	0.05	Sesquiterpene
Selina-4(15),7-diene	0.02	Sesquiterpene
Unknown	0.02	Unknown
Germacrene D	0.03	Sesquiterpene
β-Selinene	0.03	Sesquiterpene
Viridiflorene	0.01	Sesquiterpene
α-Selinene	0.02	Sesquiterpene
Methyl (*E*)-isoeugenol	0.08	Phenylpropanoid
(3*Z*,6*E*)-α-Farnesene	0.03	Sesquiterpene
γ-Cadinene	0.04	Sesquiterpene
δ-Cadinene	0.06	Sesquiterpene

(*E*)-α-Bisabolene	0.04	Sesquiterpene
Elemicin	0.02	Phenylpropanoid
Spathulenol	0.02	Sesquiterpenic alcohol
Caryophyllene oxide	0.05	Sesquiterpenic ether
Caryophyllene oxide isomer	0.04	Sesquiterpenic ether
Unknown	0.02	Oxygenated sesquiterpene
Caryophylladienol II	0.02	Sesquiterpenic alcohol
β-Eudesmol	0.04	Sesquiterpenic alcohol
α-Eudesmol	0.02	Sesquiterpenic alcohol
Consolidated total	**99.72**	

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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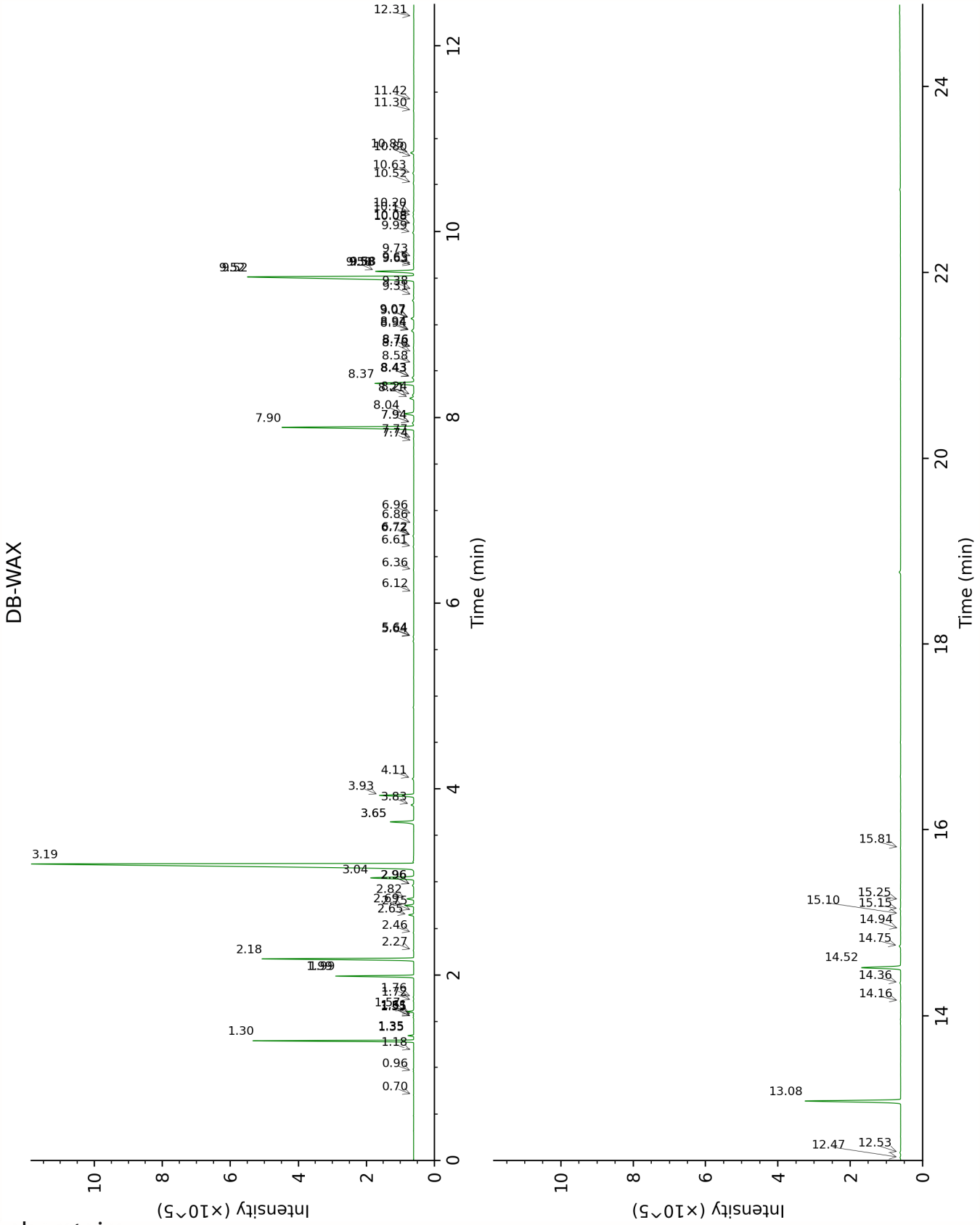
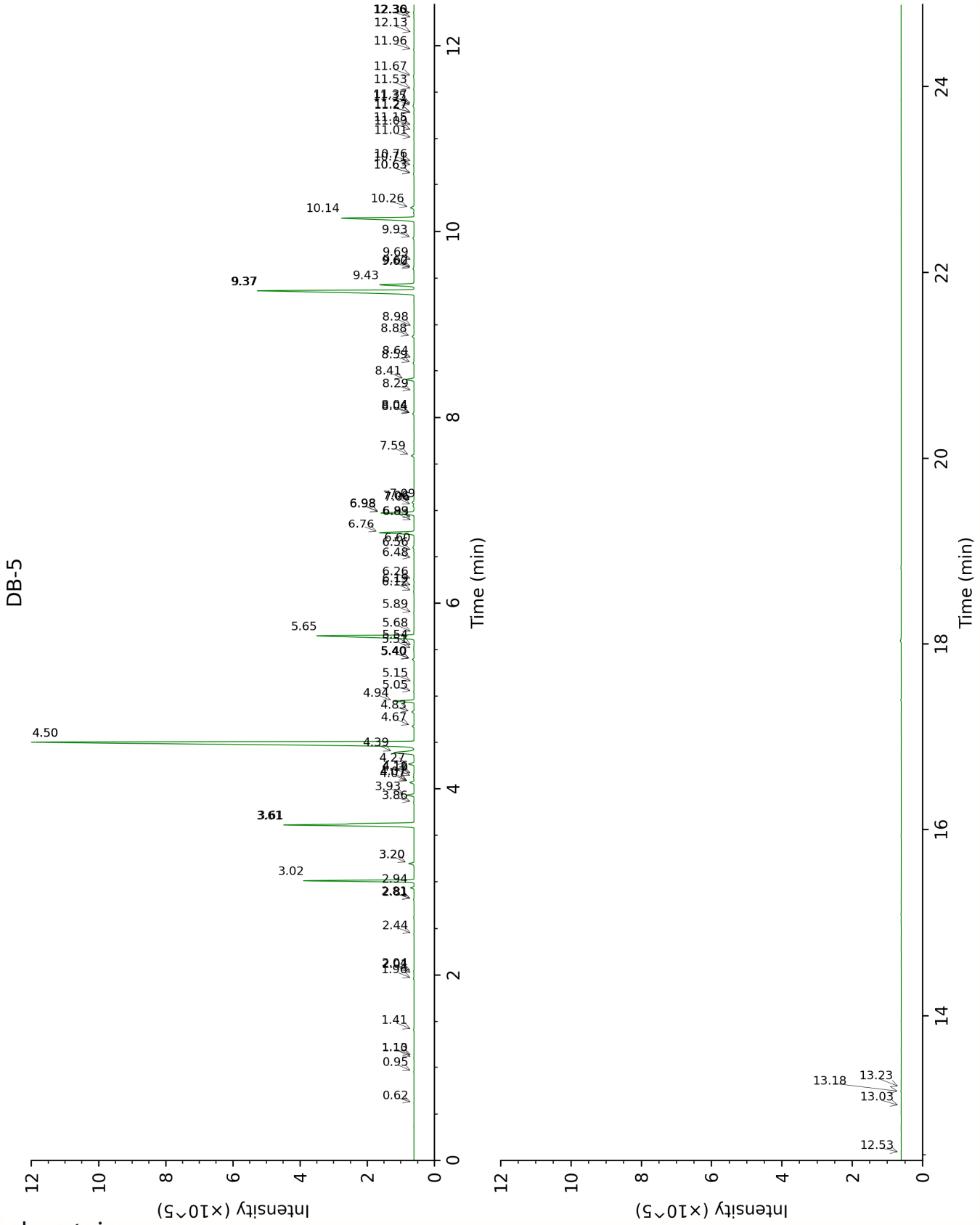

DB-WAX
Time (min)
Intensity (×10^5)
12.31
11.42
11.30
10.63
10.52
9.99
9.73
9.52
8.58
8.43
8.37
8.04
7.90
6.96
6.86
6.61
6.36
6.12
4.11
3.93
3.65
3.19
3.04
2.82
2.65
2.46
2.27
2.18
1.76
1.35
1.30
1.18
0.96
0.70
15.81
15.25
15.15
15.10
14.94
14.75
14.52
14.36
14.16
13.08
12.53
12.47


DB-5
Time (min)
Intensity (×10^5)
12.30
12.13
11.96
11.67
11.53
11.01
10.76
10.63
10.26
10.14
9.93
9.69
9.43
9.37
8.98
8.88
8.64
8.41
8.29
7.59
6.98
6.76
6.48
6.26
5.89
5.68
5.65
5.40
5.15
5.05
4.94
4.83
4.67
4.50
4.39
3.93
3.86
3.61
3.20
3.02
2.94
2.81
2.44
2.04
1.41
0.95
0.62
13.23
13.18
13.03
12.53

FULL ANALYSIS DATA

	Column DB-WAX			Column DB-5		
2-Methylbutyral	0.70	877.6	0.01	0.62	653.4	tr
1-Methylpyrrole	2.27	1091.7	0.02	0.95	734.2	0.01
Ethyl isobutyrate	0.96	935.4	0.01	1.10	755.8	0.01
Toluene	1.35*	998.4	[0.19]	1.13	759.3	tr
Hexanal	1.76	1042.3	0.02	1.41	800.4	0.04
Ethyl 2-methylbutyrate	1.55*	1021.0	[0.02]	1.96	849.1	0.05
Ethyl isovalerate	1.72	1038.3	0.02	2.01	853.7	0.02
(3*Z*)-Hexenol	5.64*	1345.8	[0.03]	2.04	856.0	0.04
Isopropyl 2-methylbutyrate	1.57	1023.3	0.02	2.44	890.0	0.02
Isobutyl isobutyrate	1.99*	1064.5	[3.51]	2.81*	918.0	[0.02]
Tricyclene	1.18	970.7	0.01	2.81*	918.0	[0.02]
α-Thujene	1.35*	998.4	[0.19]	2.94	926.4	0.19
α-Pinene	1.30	989.6	5.98	3.02	931.6	6.03
α-Fenchene	1.55*	1021.0	[0.02]	3.20*	943.9	[0.31]
Camphene	1.61	1027.0	0.30	3.20*	943.9	[0.31]
Sabinene	2.18	1082.7	7.31	3.61*	971.8	[10.93]
β-Pinene	1.99*	1064.5	[3.51]	3.61*	971.8	[10.93]
Dehydro-1,8-cineole	2.96*	1149.4	[0.07]	3.86	988.2	0.03
Myrcene	2.75	1132.5	0.42	3.93	993.3	0.44
α-Phellandrene	2.65	1124.6	0.23	4.07*	1002.5	[0.26]
Pseudolimonene	2.69	1127.8	0.02	4.07*	1002.5	[0.26]
Isobutyl 2-methylbutyrate	2.96*	1149.4	[0.07]	4.13	1006.3	0.04
Δ3-Carene	2.46	1109.5	0.02	4.16	1008.3	0.02
α-Terpinene	2.82	1138.0	0.33	4.27	1015.2	0.34
para-Cymene	3.93	1224.4	1.82	4.39	1023.0	1.85
1,8-Cineole	3.19	1167.4	37.05	4.50*	1030.1	[39.55]
Limonene	3.04	1155.7	2.74	4.50*	1030.1	[39.55]
(*Z*)-β-Ocimene	3.65*	1203.2	[1.33]	4.67	1041.0	0.12
(*E*)-β-Ocimene	3.83	1216.8	0.13	4.83	1050.7	0.14
γ-Terpinene	3.65*	1203.2	[1.33]	4.94	1058.1	1.24
cis-Sabinene hydrate	6.72*	1425.6	[0.05]	5.05	1065.1	0.03
cis-Linalool oxide (fur.)	6.36	1398.2	0.03	5.15	1071.5	0.01
Terpinolene	4.11	1237.4	0.08	5.40*	1087.1	[0.10]
para-Cymenene	6.12	1380.7	0.02	5.40*	1087.1	[0.10]
trans-Linalool oxide (fur.)	6.72*	1425.6	[0.05]	5.40*	1087.1	[0.10]

2-Nonanone	5.64*	1345.8	[0.03]	5.51	1094.1	0.03
trans-Sabinene hydrate	7.77	1504.9	0.02	5.54	1095.9	0.02
Linalool	7.90	1514.4	8.00	5.65	1103.4	8.03
Hotrienol	8.58	1568.5	0.01	5.68	1105.5	0.02
cis-para-Menth-2-en-1-ol	7.94*	1518.0	[0.11]	5.90	1119.2	0.02
trans-Pinocarveol	8.94*	1596.4	[0.18]	6.12	1134.1	0.04
trans-para-Menth-2-en-1-ol	8.76*	1582.5	[0.03]	6.19	1138.1	0.03
trans-Verbenol	9.32	1626.7	0.03	6.26	1142.7	0.03
Pinocarvone	7.74	1502.7	0.01	6.48	1157.4	0.02
(*E*)-2,6-Dimethyl-1,5,7-octatrien-3-ol	10.08*	1689.7	[0.03]	6.56	1162.5	0.03
Borneol	9.58*	1648.2	[2.29]	6.60	1165.0	0.09
Terpinen-4-ol	8.37	1551.6	2.37	6.76	1175.4	2.37
para-Cymen-8-ol	11.30	1793.7	0.03	6.89	1183.9	0.02
trans-Isocarveol	10.80	1750.9	0.02	6.93	1186.7	0.01
Myrtenal	8.43*	1556.4	[0.10]	6.98*	1189.7	[2.30]
α-Terpineol	9.58*	1648.2	[2.29]	6.98*	1189.7	[2.30]
Myrtenol	10.63	1736.2	0.07	7.06*	1194.8	[0.07]
cis-Piperitol	9.38	1631.7	0.03	7.06*	1194.8	[0.07]
Methylchavicol	9.07*	1606.8	[0.17]	7.09	1197.2	0.15
Nerol	10.85	1754.9	0.20	7.59	1230.9	0.18
Linalyl acetate	7.94*	1518.0	[0.11]	8.04*	1261.7	[0.10]
Geraniol	11.42	1803.6	0.02	8.04*	1261.7	[0.10]
4-Thujen-2α-yl acetate	8.70	1577.4	0.02	8.28	1278.5	0.02
Bornyl acetate	8.04	1525.9	0.60	8.41	1287.2	0.58
2-Undecanone	8.43*	1556.4	[0.10]	8.59	1299.2	0.06
Thymol	14.94	2132.8	0.02	8.64	1302.8	0.02
δ-Terpinyl acetate	8.94*	1596.4	[0.18]	8.88	1316.1	0.14
Unknown LANO II [m/z 119, 43 (99), 93 (52), 59 (44), 91 (41), 134 (34)...]	9.66	1654.7	0.02	8.98	1323.4	0.02
α-Cubebene	6.61	1416.8	0.04	9.37*	1351.0	[13.82]
α-Terpinyl acetate	9.52*	1643.3	[13.73]	9.37*	1351.0	[13.82]
Eugenol	14.52	2091.8	2.37	9.43	1355.6	2.38
Neryl acetate	9.99	1682.1	0.08	9.60	1367.7	0.06
α-Ylangene	6.86	1435.8	0.02	9.62	1368.5	0.02
α-Copaene	6.96	1443.4	0.02	9.69	1373.8	0.02
β-Elemene	8.24	1541.6	0.08	9.93	1391.0	0.08
Methyleugenol	13.08	1954.1	5.76	10.14	1406.2	5.86

β-Caryophyllene	8.21	1539.0	0.26	10.26	1414.6	0.26
(*E*)-Cinnamyl acetate	14.36	2075.8	0.05	10.63*	1442.3	[0.06]
6,9-Guaiadiene	8.43*	1556.4	[0.10]	10.63*	1442.3	[0.06]
α-Humulene	9.07*	1606.8	[0.17]	10.71	1448.9	0.05
Selina-4(15),7-diene	8.76*	1582.5	[0.03]	10.76	1452.2	0.02
Unknown LANO I [m/z 43, 67 (61), 79 (57), 81 (44), 54 (44)...]				11.01	1471.2	0.02
Germacrene D	9.58*	1648.2	[2.29]	11.09	1477.2	0.03
β-Selinene	9.63	1653.0	0.02	11.15	1481.4	0.03
Viridiflorene	9.52*	1643.3	[13.73]	11.27*	1491.0	[0.03]
α-Selinene	9.73	1660.6	0.02	11.27*	1491.0	[0.03]
Methyl (*E*)-isoeugenol	14.75	2114.3	0.10	11.35	1497.0	0.08
(3*Z*,6*E*)-α-Farnesene	10.08*	1689.7	[0.03]	11.37	1498.3	0.03
γ-Cadinene	10.17	1696.8	0.07	11.53	1510.5	0.04
δ-Cadinene	10.20	1699.6	0.05	11.67	1521.5	0.06
(*E*)-α-Bisabolene	10.52	1726.3	0.05	11.96	1544.0	0.04
Elemicin	15.25	2164.7	0.02	12.14	1558.2	0.02
Spathulenol	14.16	2056.8	0.02	12.30	1571.4	0.02
Caryophyllene oxide	12.52	1902.5	0.05	12.36*	1575.7	[0.06]
Caryophyllene oxide isomer	12.48	1898.0	0.04	12.36*	1575.7	[0.06]
Unknown LANO III [m/z 133, 93 (64), 43 (64), 177 (60), 107 (59), 91 (55)...220 (7)]	12.31	1883.5	0.01	12.53	1589.1	0.02
Caryophylladienol II	15.81	2221.2	0.03	13.03	1629.8	0.02
β-Eudesmol	15.15	2154.8	0.04	13.18	1642.8	0.04
α-Eudesmol	15.10	2149.5	0.03	13.23	1646.5	0.02
Total reported		99.12%			99.44%	

*: 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