Date : 2026-08-21

Certificate of Analysis - GC Profiling

Sample Identification

Internal code : 26E22-PTH07
Customer Identification : Lavender Fine - Bulgaria - LK0110
Type : Essential Oil
Source : *Lavandula angustifolia*
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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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.

This report is an update from the first version issued on 2026-05-28 to update the customer identification.

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 : 2026-05-27

Physicochemical data

Refractive index : 1.4623 ± 0.0003 (20 °C)
Method : PC-MAT-016 - Measure of the refractive index of a liquid.
Analyst : Cindy Caron B. Sc.
Date : 2026-05-22

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
3-Buten-2-one	tr	Aliphatic ketone
2-Methyl-3-buten-2-ol	0.02	Aliphatic alcohol
Isovaleral	0.01	Aliphatic aldehyde
2-Methylbutyral	tr	Aliphatic aldehyde
Isoamyl alcohol	0.01	Aliphatic alcohol
2-Methylbutanol	0.01	Aliphatic alcohol
Butyl acetate	0.02	Aliphatic ester
Methyl hexyl ether	0.11	Aliphatic ether
(3*Z*)-Hexenol	0.02	Aliphatic alcohol
Hexanol	0.16	Aliphatic alcohol
Tricyclene	0.02	Monoterpene
α-Thujene	0.10	Monoterpene
α-Pinene	0.18	Monoterpene
Camphene	0.11	Monoterpene
Butyl isobutyrate	0.01	Aliphatic ester
Sabinene	0.04	Monoterpene
β-Pinene	0.04	Monoterpene
Octen-3-ol	0.25	Aliphatic alcohol
Octan-3-one	1.25	Aliphatic ketone
Myrcene	0.55	Monoterpene
Butyl butyrate	0.11	Aliphatic ester
Octan-3-ol	0.30	Aliphatic alcohol
α-Phellandrene	0.04	Monoterpene
cis-Dehydroxylinalool oxide	0.02	Monoterpenic ether
Δ3-Carene	0.08	Monoterpene
α-Terpinene	0.03	Monoterpene
Hexyl acetate	0.55	Aliphatic ester
meta-Cymene	0.03	Monoterpene
para-Cymene	0.18	Monoterpene
Limonene	0.30	Monoterpene
1,8-Cineole	0.57	Monoterpenic ether
β-Phellandrene	0.21	Monoterpene
Lavender lactone	0.02	Aliphatic lactone
(*Z*)-β-Ocimene	3.68	Monoterpene
(*E*)-β-Ocimene	2.17	Monoterpene
γ-Terpinene	0.11	Monoterpene
cis-Sabinene hydrate	0.06	Monoterpenic alcohol
cis-Linalool oxide (fur.)	0.17	Monoterpenic alcohol
Octanol	0.04	Aliphatic alcohol
α-Pinene oxide analog	0.04	Monoterpenic ether

trans-Linalool oxide (fur.)	0.12	Monoterpenic alcohol
Terpinolene	0.06	Monoterpene
Rosefuran	0.05	Monoterpenic ether
Linalool	32.90	Monoterpenic alcohol
(*Z*)-6-Methyl-3,5-heptadien-2-one	0.06	Aliphatic ketone
β-Thujone	0.04	Monoterpenic ketone
Octen-3-yl acetate	0.78	Aliphatic ester
Unknown	0.03	Unknown
Octan-3-yl acetate	0.12	Aliphatic ester
allo-Ocimene	0.06	Monoterpene
(*Z*)-Myroxide	0.05	Monoterpenic ether
Camphor	0.20	Monoterpenic ketone
(*E*)-Myroxide	0.03	Monoterpenic ether
Unknown	0.03	Oxygenated monoterpene
Nerol oxide	0.02	Aliphatic ether
Hexyl isobutyrate	0.07	Aliphatic ester
Borneol	0.48	Monoterpenic alcohol
Lavandulol	1.27	Monoterpenic alcohol
Terpinen-4-ol	3.80	Monoterpenic alcohol
(3*E*,5*Z*)-Undeca-1,3,5-triene	0.03	Alkene
Cryptone	0.26	Normonoterpenic ketone
meta-Cymen-8-ol	0.05	Monoterpenic alcohol
para-Cymen-8-ol	0.02	Monoterpenic alcohol
α-Terpineol	0.97	Monoterpenic alcohol
Hodiendiol (2,6-dimethylocta-3,7-diene-2,6-diol)	0.04	Monoterpenic alcohol
Hexyl butyrate	0.36	Aliphatic ester
Verbenone	0.02	Monoterpenic ketone
Unknown	0.02	Unknown
(3*E*,5*E*)-2,6-Dimethylocta-3,5,7-trien-2-ol	0.04	Monoterpenic alcohol
trans-Carveol	0.04	Monoterpenic alcohol
Bornyl formate	0.03	Monoterpenic ester
Nerol	0.17	Monoterpenic alcohol
Hexyl 2-methylbutyrate	0.07	Aliphatic ester
Cuminal	0.04	Monoterpenic aldehyde
Carvone	0.03	Monoterpenic ketone
Neral	0.04	Monoterpenic aldehyde
Geraniol	0.38	Monoterpenic alcohol
Linalyl acetate	30.04	Monoterpenic ester
Geranial	0.04	Monoterpenic aldehyde
iso-Isopulegyl acetate	0.05	Monoterpenic ester
Bornyl acetate	0.12	Monoterpenic ester
para-Cymen-7-ol	0.05	Monoterpenic alcohol
Lavandulyl acetate	3.16	Monoterpenic ester
Hexyl tiglate	0.05	Aliphatic ester

Hodiendiol derivative	0.04	Oxygenated monoterpene
Unknown	0.03	Oxygenated monoterpene
Unknown	0.03	Oxygenated monoterpene
Neryl acetate	0.26	Monoterpenic ester
α-Copaene	0.03	Sesquiterpene
β-Bourbonene	0.06	Sesquiterpene
Geranyl acetate	0.42	Monoterpenic ester
Hexyl hexanoate	0.12	Aliphatic ester
7-epi-Sesquithujene	0.11	Sesquiterpene
Isocaryophyllene	0.02	Sesquiterpene
Sesquithujene	0.04	Sesquiterpene
β-Caryophyllene	3.86	Sesquiterpene
α-Santalene	0.44	Sesquiterpene
Lavandulyl isobutyrate	0.08	Monoterpenic ester
trans-α-Bergamotene	0.15	Sesquiterpene
Sesquisabinene A	0.03	Sesquiterpene
cis-β-Bergamotene?	0.06	Sesquiterpene
α-Humulene	0.14	Sesquiterpene
Lavandulyl butyrate?	0.15	Monoterpenic ester
(*E*)-β-Farnesene	3.96	Sesquiterpene
β-Santalene	0.01	Sesquiterpene
Germacrene D	0.50	Sesquiterpene
trans-β-Bergamotene	0.07	Sesquiterpene
Isodaucene	0.02	Sesquiterpene
β-Bisabolene	0.03	Sesquiterpene
γ-Cadinene	0.13	Sesquiterpene
Unknown	0.04	Oxygenated sesquiterpene
δ-Cadinene	0.04	Sesquiterpene
Isocaryophyllene epoxide B	0.04	Sesquiterpenic ether
(*E*)-Nerolidol	0.03	Sesquiterpenic alcohol
Caryophyllene oxide	0.39	Sesquiterpenic ether
τ-Cadinol	0.05	Sesquiterpenic alcohol
Consolidated total	**99.32**	

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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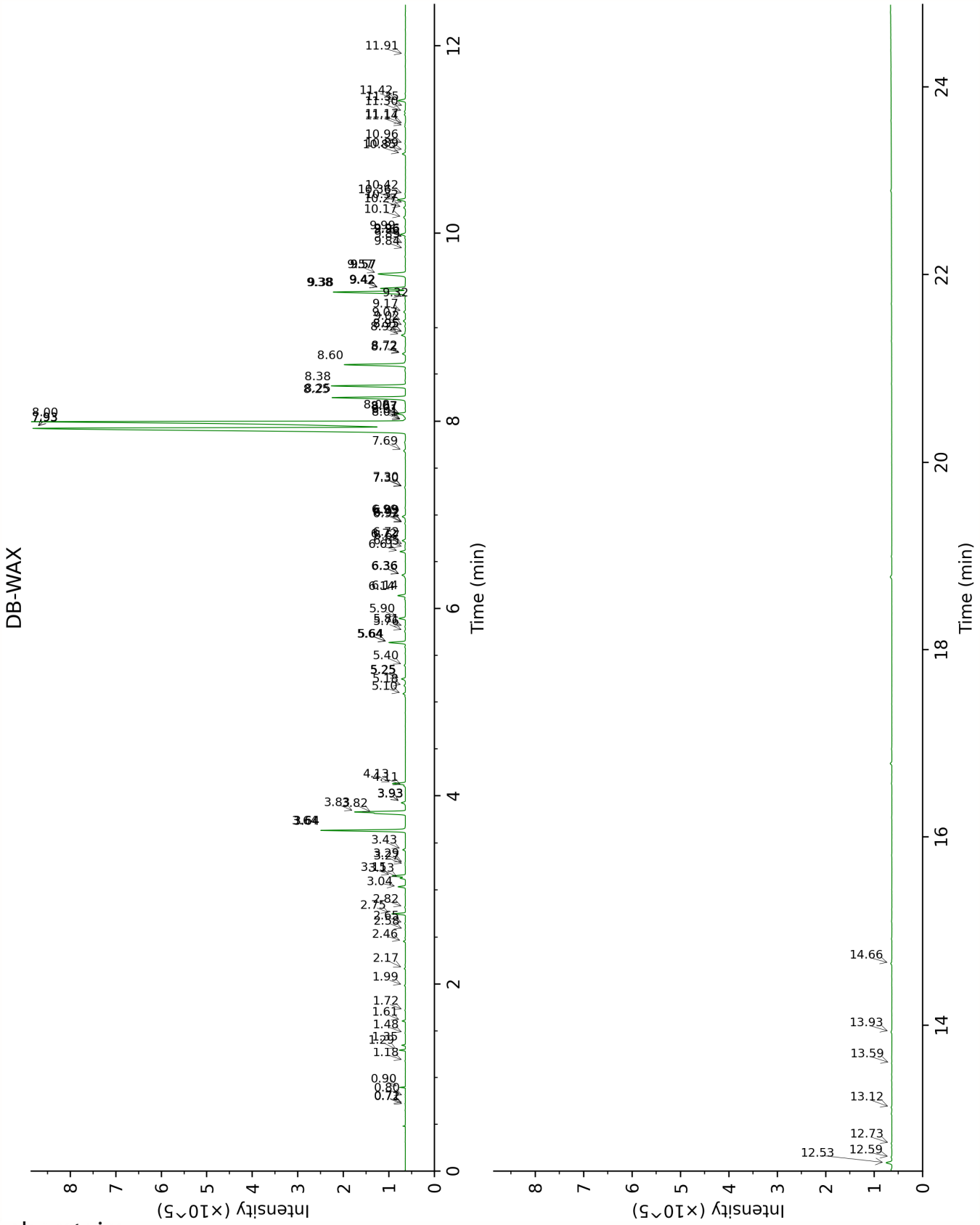
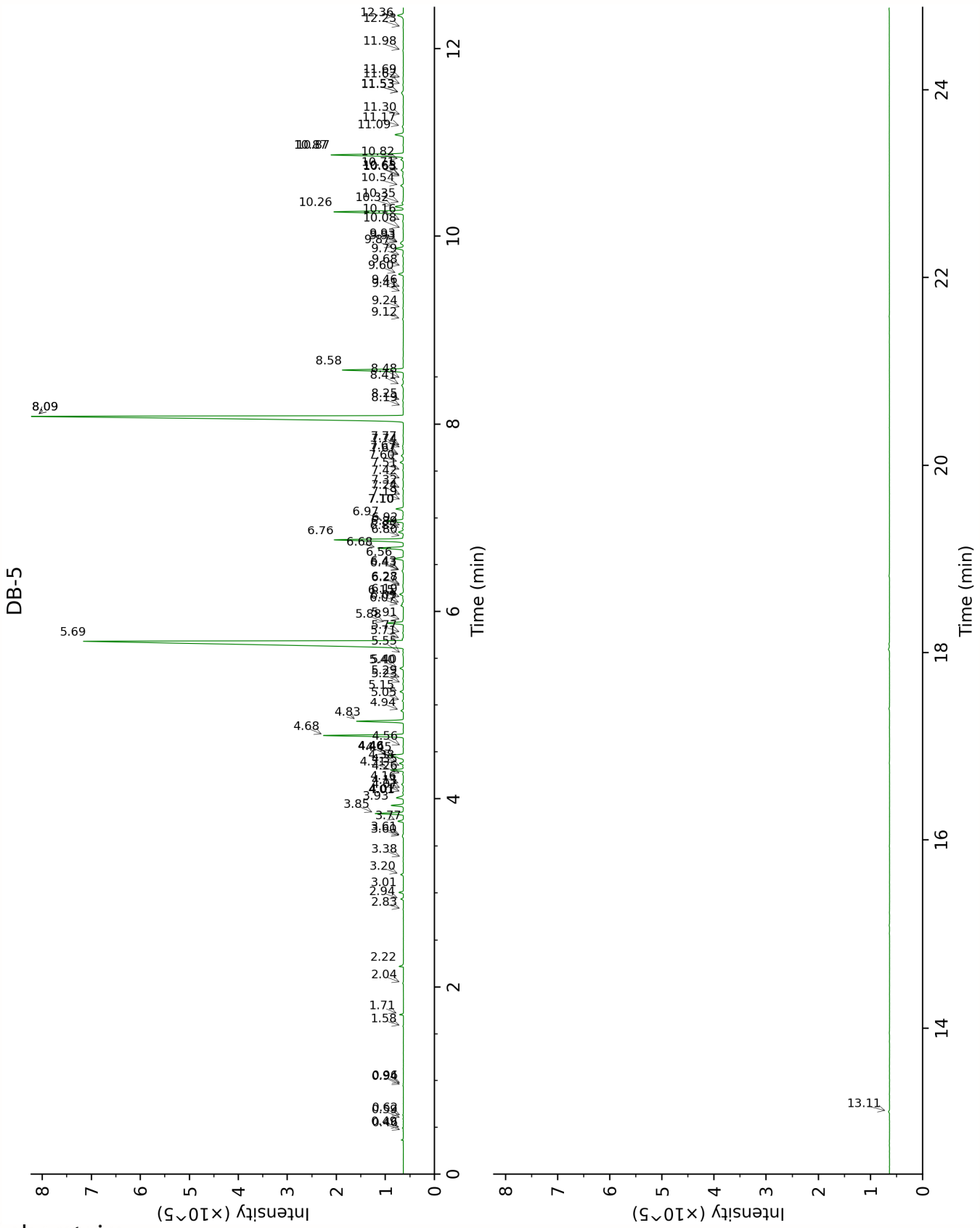

DB-WAX
Intensity (×10^5)
Time (min)
11.91
11.42
10.96
10.42
10.17
9.84
9.57
9.38
9.42
9.32
9.17
8.72
8.60
8.38
8.25
8.00
7.93
7.69
7.30
6.36
5.90
5.64
5.40
5.25
5.10
4.13
3.93
3.83
3.82
3.64
3.43
3.04
2.82
2.75
2.46
2.17
1.99
1.72
1.61
1.48
1.18
0.90
0.80
0.72
14.66
13.93
13.59
13.12
12.73
12.59
12.53


DB-5
Time (min)
Intensity (×10^5)
5.69
8.09
10.26
8.58
6.76
6.68
4.83
4.68
3.85
13.11

FULL ANALYSIS DATA

	Column DB-WAX			Column DB-5		
3-Buten-2-one	0.80	910.1	tr	0.46	578.3	tr
2-Methyl-3-buten-2-ol	1.48	1014.4	0.02	0.49	606.5	0.02
Isovaleral	0.72	883.8	0.01	0.59	643.4	0.01
2-Methylbutyral	0.71	878.2	0.01	0.62	653.7	tr
Isoamyl alcohol	3.29	1174.8	0.01	0.94	732.6	0.01
2-Methylbutanol	3.27	1173.5	0.01	0.96	735.4	0.01
Butyl acetate	1.72	1038.1	0.02	1.58	817.4	0.02
Methyl hexyl ether	0.90	925.3	0.12	1.71	827.8	0.11
(3*Z*)-Hexenol	5.64*	1346.0	[0.78]	2.04	856.1	0.02
Hexanol	5.25*	1317.6	[0.20]	2.22	871.3	0.16
Tricyclene	1.18	970.6	0.01	2.83	919.0	0.02
α-Thujene	1.35	998.4	0.11	2.94	926.4	0.10
α-Pinene	1.29	988.8	0.18	3.01	931.1	0.18
Camphene	1.61	1027.0	0.11	3.20	943.8	0.11
Butyl isobutyrate	2.58	1119.3	0.01	3.38	955.9	0.01
Sabinene	2.17	1081.7	0.04	3.60†	970.9	0.04
β-Pinene	1.99	1064.1	0.04	3.61†	971.4	0.03
Octen-3-ol	6.61	1417.0	0.26	3.76	982.0	0.25
Octan-3-one	3.82	1216.3	1.12	3.85	987.5	1.25
Myrcene	2.75	1132.4	0.53	3.93	993.3	0.55
Butyl butyrate	3.43	1186.0	0.11	4.01*	998.7	[0.40]
Octan-3-ol	5.90	1364.7	0.30	4.01*	998.7	[0.40]
α-Phellandrene	2.65	1124.6	0.02	4.07	1002.5	0.04
cis-Dehydroxylinalool oxide	3.64*	1202.3	[3.77]	4.11	1005.0	0.02
Δ3-Carene	2.46	1109.6	0.08	4.16	1008.2	0.08
α-Terpinene	2.82	1137.9	0.03	4.26	1014.9	0.03
Hexyl acetate	4.13	1239.3	0.57	4.31	1017.8	0.55
meta-Cymene	3.93*	1224.3	[0.20]	4.35	1020.2	0.03
para-Cymene	3.93*	1224.3	[0.20]	4.38	1022.3	0.18
Limonene	3.04	1155.1	0.30	4.44*†	1026.5	[0.23]
1,8-Cineole	3.15	1164.1	0.57	4.46*†	1027.6	[0.86]
β-Phellandrene	3.13	1162.2	0.21	4.46*†	1027.6	[0.86]
Lavender lactone	9.02	1602.6	0.04	4.56	1033.6	0.02
(*Z*)-β-Ocimene	3.64*	1202.3	[3.77]	4.68	1041.2	3.68
(*E*)-β-Ocimene	3.83	1217.1	2.24	4.83	1050.9	2.17
γ-Terpinene	3.64*	1202.3	[3.77]	4.94	1058.0	0.11
cis-Sabinene hydrate	6.72*	1425.7	[0.16]	5.05	1065.0	0.06
cis-Linalool oxide	6.36*	1398.3	[0.18]	5.15	1071.4	0.17

(fur.)						
Octanol	8.01*	1523.2	[0.06]	5.23	1076.7	0.04
α-Pinene oxide analog	5.25*	1317.6	[0.20]	5.29	1080.5	0.04
trans-Linalool oxide (fur.)	6.72*	1425.7	[0.16]	5.40*	1087.2	[0.18]
Terpinolene	4.11	1237.6	0.06	5.40*	1087.2	[0.18]
Rosefuran	5.81	1358.3	0.03	5.55	1096.7	0.05
Linalool	7.93*†	1516.8	[33.26]	5.69	1105.6	32.90
(*Z*)-6-Methyl-3,5-heptadien-2-one	8.07*	1527.9	[0.12]	5.71	1107.1	0.06
β-Thujone	6.14*	1382.4	[0.37]	5.77	1111.3	0.04
Octen-3-yl acetate	5.64*	1346.0	[0.78]	5.88	1118.1	0.78
Unknown LAAN I [m/z 82, 81 (72), 43 (64), 54 (32), 41 (20)...]	9.42*	1635.3	[1.23]	5.91	1120.0	0.03
Octan-3-yl acetate	5.10	1306.0	0.12	6.07	1130.3	0.12
allo-Ocimene	5.40	1328.1	0.06	6.09	1131.6	0.06
(*Z*)-Myroxide	6.65	1420.4	0.03	6.15	1135.8	0.05
Camphor	6.99*	1445.6	[0.19]	6.19	1138.1	0.20
(*E*)-Myroxide	6.92*	1440.1	[0.04]	6.27	1143.3	0.03
Unknown CALU I [m/z 95, 43 (74), 109 (72), 82 (62), 110 (50)... 152 (14)]	6.92*	1440.1	[0.04]	6.28	1144.3	0.03
Nerol oxide	6.67	1421.9	0.02	6.43*	1154.2	[0.08]
Hexyl isobutyrate	5.18	1312.4	0.07	6.43*	1154.2	[0.08]
Borneol	9.57*	1647.9	[1.94]	6.56	1162.7	0.48
Lavandulol	9.42*	1635.3	[1.23]	6.68	1170.1	1.27
Terpinen-4-ol	8.38	1552.3	3.78	6.76	1175.8	3.80
(3*E*,5*Z*)-Undeca-1,3,5-triene	5.76	1354.7	0.05	6.80	1177.8	0.03
Cryptone	8.92	1595.1	0.23	6.85	1181.2	0.26
meta-Cymen-8-ol	11.30	1793.6	0.07	6.89	1183.9	0.05
para-Cymen-8-ol	11.35	1798.1	0.02	6.92	1185.7	0.02
α-Terpineol	9.57*	1647.9	[1.94]	6.97	1189.4	0.97
Hodiendiol (2,6-dimethylocta-3,7-diene-2,6-diol)	12.59	1908.4	0.04	7.10*	1197.7	[0.40]
Hexyl butyrate	6.14*	1382.4	[0.37]	7.10*	1197.7	[0.40]
Verbenone	9.42*	1635.3	[1.23]	7.19	1203.7	0.02
Unknown SASC	7.30*	1469.0	[0.05]	7.24	1206.7	0.02

VII [m/z 43, 71 (66), 59 (52), 41 (47), 68 (46)...]						
(3*E*,5*E*)-2,6-Dimethylocta-3,5,7-trien-2-ol	11.14	1780.2	0.04	7.32	1212.1	0.04
trans-Carveol	11.17	1782.3	0.03	7.42	1218.8	0.04
Bornyl formate	7.93*†	1516.8	[33.26]	7.51	1225.5	0.03
Nerol	10.85	1755.0	0.17	7.60	1231.2	0.17
Hexyl 2-methylbutyrate	6.36*	1398.3	[0.18]	7.67*	1236.1	[0.11]
Cuminal	10.42	1718.0	0.04	7.67*	1236.1	[0.11]
Carvone	9.84	1669.5	0.02	7.74	1241.3	0.03
Neral	9.32	1627.1	0.04	7.77	1243.0	0.04
Geraniol	11.42	1803.8	0.38	8.08*	1264.8	[30.42]
Linalyl acetate	8.00*†	1522.3	[29.57]	8.08*	1264.8	[30.42]
Geranial	9.96*	1679.4	[0.04]	8.19	1272.0	0.04
iso-Isopulegyl acetate				8.25	1276.4	0.05
Bornyl acetate	8.07*	1527.9	[0.12]	8.41	1287.4	0.12
para-Cymen-7-ol	13.93	2034.2	0.06	8.48	1291.9	0.05
Lavandulyl acetate	8.60	1570.0	3.18	8.58	1298.6	3.16
Hexyl tiglate	8.72*	1579.1	[0.17]	9.12	1333.6	0.05
Hodiendiol derivative	12.73	1921.6	0.03	9.24	1342.0	0.04
Unknown SASC II [m/z 43, 79 (47), 71 (31), 94 (27), 81 (23), 41 (22)... 197 (0)]	10.89	1758.5	0.03	9.41	1353.8	0.03
Unknown SASC III [m/z 43, 79 (46), 71 (30), 94 (25), 41 (23), 81 (21)... 197 (0)]	10.96	1764.5	0.02	9.46	1357.5	0.03
Neryl acetate	9.99	1682.3	0.26	9.60	1367.7	0.26
α-Copaene	6.99*	1445.6	[0.19]	9.68	1373.5	0.03
β-Bourbonene	7.30*	1469.0	[0.05]	9.80	1381.4	0.06
Geranyl acetate	10.36	1712.6	0.43	9.87	1386.9	0.42
Hexyl hexanoate	8.72*	1579.1	[0.17]	9.93*	1390.8	[0.23]
7-epi-Sesquithujene	7.69	1498.3	0.11	9.93*	1390.8	[0.23]
Isocaryophyllene	8.01*	1523.2	[0.06]	10.08	1401.7	0.02
Sesquithujene	7.93*†	1516.8	[33.26]	10.16	1407.5	0.04

β-Caryophyllene	8.25*	1542.5	[3.95]	10.26	1415.0	3.86
α-Santalene	8.08	1529.0	0.46	10.32	1419.1	0.44
Lavandulyl isobutyrate	9.17	1614.9	0.09	10.35	1421.8	0.08
trans-α-Bergamotene	8.25*	1542.5	[3.95]	10.54	1435.8	0.15
Sesquisabinene A	8.95*	1597.2	[0.03]	10.64	1443.0	0.03
cis-β-Bergamotene?				10.65	1444.2	0.06
α-Humulene	9.07	1607.0	0.12	10.71	1448.8	0.14
Lavandulyl butyrate?	10.32	1709.5	0.03	10.82	1457.1	0.15
(*E*)-β-Farnesene	9.38*	1632.1	[4.03]	10.87*	1460.9	[3.99]
β-Santalene	8.95*	1597.2	[0.03]	10.87*	1460.9	[3.99]
Germacrene D	9.57*	1647.9	[1.94]	11.09	1477.0	0.50
trans-β-Bergamotene	9.38*	1632.1	[4.03]	11.17	1483.4	0.07
Isodaucene	9.89	1673.7	0.01	11.30	1492.6	0.02
β-Bisabolene	9.96*	1679.4	[0.04]	11.53*	1510.5	[0.16]
γ-Cadinene	10.17	1697.2	0.13	11.53*	1510.5	[0.16]
Unknown CULO LIV [m/z 121, 93 (56), 91 (12), 94 (11), 122 (10)...220]	13.12	1957.5	0.04	11.62	1517.2	0.04
δ-Cadinene	10.27	1705.6	0.11	11.69	1523.0	0.04
Isocaryophyllene epoxide B	11.91	1847.3	0.04	11.98	1546.1	0.04
(*E*)-Nerolidol	13.59	2001.4	0.02	12.23	1565.6	0.03
Caryophyllene oxide	12.53	1902.9	0.32	12.36	1575.6	0.39
τ-Cadinol	14.66	2105.1	0.07	13.11	1636.5	0.05
Total reported		98.29%			99.32%	

*: 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