Date : 2026-09-08

Certificate of Analysis - GC Profiling

Sample Identification

Internal code : 26G09-PTH04
Customer Identification : Neroli - Egypt/Tunisia - N10115
Type : Essential Oil
Source : *Citrus aurantium subsp. amara*
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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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 2026-07-15 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 : Sylvain Mercier, M. Sc., Chimiste 2014-005
Date : 2026-07-14

Physicochemical data

Refractive index : 1.4699 ± 0.0003 (20 °C)
Method : PC-MAT-016 - Measure of the refractive index of a liquid.
Analyst : Cindy Caron B. Sc.
Date : 2026-07-10

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
Ethanol	0.01	Aliphatic alcohol
2-Methyl-3-buten-2-ol	0.01	Aliphatic alcohol
(3*Z*)-Hexenol	tr	Aliphatic alcohol
(2*E*)-Hexenol	tr	Aliphatic alcohol
Hexanol	0.01	Aliphatic alcohol
α-Thujene	0.02	Monoterpene
α-Pinene	1.32	Monoterpene
Camphene	0.05	Monoterpene
β-Pinene	8.38	Monoterpene
Sabinene	2.11	Monoterpene
6-Methyl-5-hepten-2-one	0.02	Aliphatic ketone
Myrcene	1.01	Monoterpene
α-Phellandrene	0.13	Monoterpene
cis-Dehydroxylinalool oxide	0.01	Monoterpenic ether
Δ3-Carene	0.02	Monoterpene
α-Terpinene	0.02	Monoterpene
para-Cymene	0.06	Monoterpene
1,8-Cineole	0.12	Monoterpenic ether
β-Phellandrene	0.06	Monoterpene
Limonene	13.02	Monoterpene
(*Z*)-β-Ocimene	1.30	Monoterpene
(*E*)-β-Ocimene	3.59	Monoterpene
γ-Terpinene	0.05	Monoterpene
cis-Sabinene hydrate	tr	Monoterpenic alcohol
cis-Linalool oxide (fur.)	0.21	Monoterpenic alcohol
Isoterpinolene	0.01	Monoterpene
trans-Linalool oxide (fur.)	0.23	Monoterpenic alcohol
Terpinolene	0.28	Monoterpene
Rosefuran	0.01	Monoterpenic ether
Linalool	43.91	Monoterpenic alcohol
Phenylethyl alcohol	0.12	Simple phenolic
cis-para-Menth-2-en-1-ol	0.04	Monoterpenic alcohol
allo-Ocimene	0.09	Monoterpene
Benzeneacetonitrile	0.11	Simple phenolic
trans-Pinocarveol	0.01	Monoterpenic alcohol
Camphor	0.11	Monoterpenic ketone
neo-allo-Ocimene	0.02	Monoterpene
trans-para-Menth-2-en-1-ol	0.04	Monoterpenic alcohol
(*E*)-Myroxide	0.03	Monoterpenic ether
Borneol	0.05	Monoterpenic alcohol

cis-Linalool oxide (pyr.)	0.03	Monoterpenic alcohol
δ-Terpineol	0.02	Monoterpenic alcohol
Terpinen-4-ol	0.12	Monoterpenic alcohol
para-Cymen-8-ol	0.02	Monoterpenic alcohol
α-Terpineol	4.97	Monoterpenic alcohol
Hodiendiol (2,6-dimethylocta-3,7-diene-2,6-diol)	0.03	Monoterpenic alcohol
Safranal	0.03	Monoterpenic aldehyde
Lilac alcohol A	0.02	Monoterpenic alcohol
(3*E*,5*E*)-2,6-Dimethylocta-3,5,7-trien-2-ol	0.03	Monoterpenic alcohol
Linalyl formate	0.03	Monoterpenic ester
Nerol	1.08	Monoterpenic alcohol
Citronellol	0.02	Monoterpenic alcohol
Neral	0.04	Monoterpenic aldehyde
Phenylethyl acetate	0.11	Phenolic ester
Linalyl acetate	4.72	Monoterpenic ester
Geraniol	2.28	Monoterpenic alcohol
Geranial	0.04	Monoterpenic aldehyde
(*trans*?)-Linalool oxide acetate (fur.)?	0.02	Monoterpenic ester
2,6-Dimethyl-1,7-octadiene-3,6-diol	0.02	Monoterpenic alcohol
Bornyl acetate	0.02	Monoterpenic ester
Safrole	0.03	Phenylpropanoid
Indole	0.21	Indole
Geranyl formate	0.02	Monoterpenic ester
Methyl anthranilate	0.35	Phenolic ester
Linalyl propionate	0.03	Monoterpenic ester
α-Terpinyl acetate	0.05	Monoterpenic ester
Eugenol	0.02	Phenylpropanoid
Neryl acetate	1.34	Monoterpenic ester
α-Copaene	0.02	Sesquiterpene
Geranyl acetate	2.77	Monoterpenic ester
β-Elemene	0.02	Sesquiterpene
(*Z*)-Jasmone	0.02	Jasmonate
Dimethyl anthranilate	0.07	Phenolic ester
β-Caryophyllene	0.55	Sesquiterpene
α-Humulene	0.05	Sesquiterpene
(*E*)-β-Farnesene	0.03	Sesquiterpene
Germacrene D	0.03	Sesquiterpene
Bicyclogermacrene	0.06	Sesquiterpene
(3*E*,6*E*)-α-Farnesene	0.02	Sesquiterpene
γ-Cadinene	tr	Sesquiterpene
δ-Cadinene	0.03	Sesquiterpene
α-Elemol	0.05	Sesquiterpenic alcohol
(*E*)-Nerolidol	1.55	Sesquiterpenic alcohol
Spathulenol	0.04	Sesquiterpenic alcohol

Caryophyllene oxide	0.07	Sesquiterpenic ether
Caryophyllene oxide isomer	0.02	Sesquiterpenic ether
Selin-6-en-4α-ol isomer	0.03	Sesquiterpenic alcohol
α-Bisabolol	0.02	Sesquiterpenic alcohol
(2*E*,6*Z*)-Farnesol	0.02	Sesquiterpenic alcohol
Heptadecane	0.02	Alkane
(2*E*,6*Z*)-Farnesal	0.02	Sesquiterpenic aldehyde
(2*E*,6*E*)-Farnesol	1.33	Sesquiterpenic alcohol
(2*E*,6*E*)-Farnesal	0.03	Sesquiterpenic aldehyde
(*E*)-α-Atlantone	0.02	Sesquiterpenic ketone
(2*E*,6*E*)-Farnesyl acetate	0.03	Sesquiterpenic ester
meta-Camphorene	0.02	Diterpene
para-Camphorene	0.04	Diterpene
Tricosane	0.01	Alkane
Pentacosane	0.01	Alkane
Consolidated total	**99.26**	

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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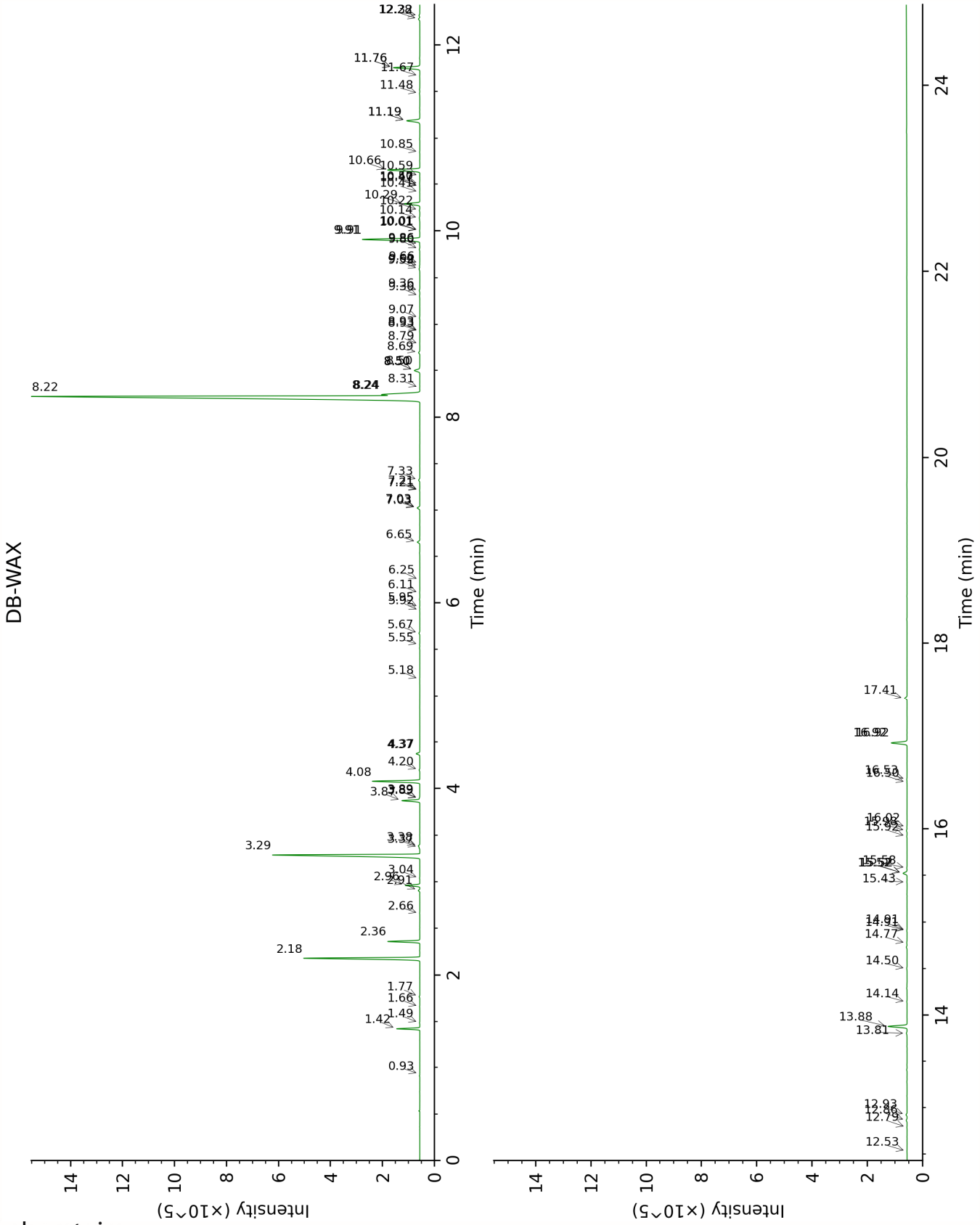
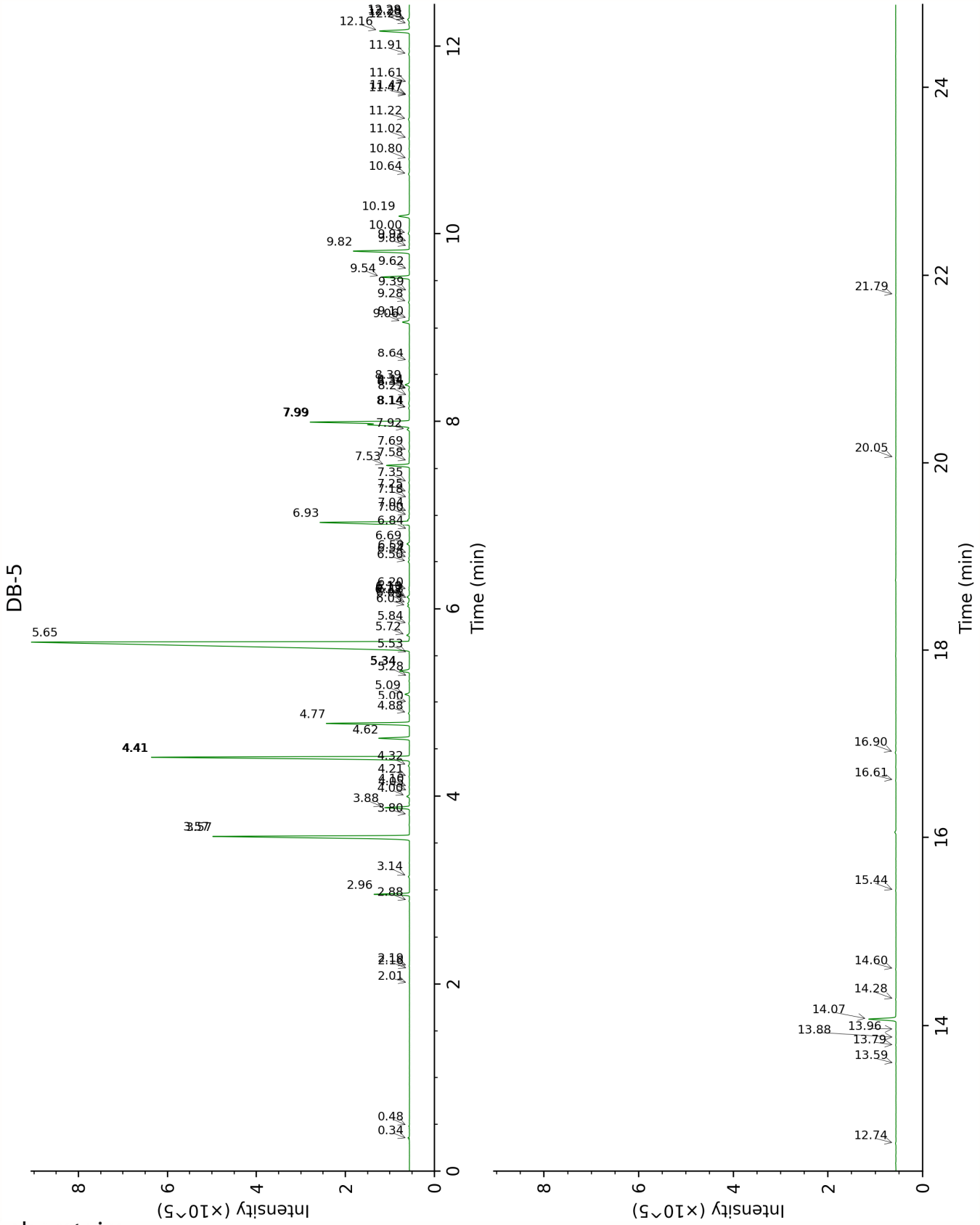

DB-WAX
Time (min)
Intensity (×10^5)
8.22
8.24
3.29
2.18
2.36
4.08
4.37
11.76
17.41


DB-5
Time (min)
Intensity (×10^5)
12.16
11.91
11.61
11.47
11.22
11.02
10.80
10.64
10.19
10.00
9.82
9.62
9.54
9.39
9.28
8.64
8.14
7.99
7.92
7.69
7.58
7.53
7.35
6.93
6.84
6.69
5.84
5.72
5.65
5.53
5.34
5.28
5.09
5.00
4.88
4.77
4.62
4.41
4.32
4.21
3.88
3.80
3.57
3.14
2.96
2.88
2.01
0.48
0.34
21.79
20.05
16.90
16.61
15.44
14.60
14.28
14.07
13.96
13.88
13.79
13.59
12.74

FULL ANALYSIS DATA

Ethanol	Column DB-WAX			Column DB-5		
	0.93	909.4	0.01	0.34	499.5	0.01
2-Methyl-3-buten-2-ol	1.66	1015.0	0.01	0.48	601.7	0.01
(3*Z*)-Hexenol	5.92	1352.4	0.01	2.01	857.2	tr
(2*E*)-Hexenol	6.24	1375.6	0.02	2.16	870.2	tr
Hexanol	5.55	1326.7	0.02	2.19	872.9	0.01
α-Thujene	1.49	997.9	0.01	2.88	926.9	0.02
α-Pinene	1.42	989.8	1.31	2.96	931.7	1.32
Camphene	1.77	1025.8	0.04	3.14	944.3	0.05
β-Pinene	2.18	1066.6	8.38	3.57*	973.3	[10.60]
Sabinene	2.36	1084.3	2.11	3.57*	973.3	[10.60]
6-Methyl-5-hepten-2-one	5.18	1300.4	0.02	3.80	988.7	0.02
Myrcene	2.96	1133.4	0.99	3.88	994.0	1.01
α-Phellandrene	2.91	1129.2	0.11	4.00	1002.0	0.13
cis-Dehydroxylinalool oxide	3.89*†	1204.8	[0.03]	4.05	1005.5	0.01
Δ3-Carene	2.66	1109.9	0.02	4.10	1008.6	0.02
α-Terpinene	3.04	1139.5	0.03	4.21	1015.5	0.02
para-Cymene	4.20	1226.8	0.06	4.32	1022.9	0.06
1,8-Cineole	3.38	1166.3	0.12	4.41*	1028.7	[13.29]
β-Phellandrene	3.37	1164.9	0.06	4.41*	1028.7	[13.29]
Limonene	3.29	1158.8	13.02	4.41*	1028.7	[13.29]
(*Z*)-β-Ocimene	3.87†	1203.2	1.30	4.62	1041.5	1.30
(*E*)-β-Ocimene	4.08	1218.1	3.56	4.77	1051.5	3.59
γ-Terpinene	3.89*†	1204.8	[0.03]	4.88	1058.4	0.05
cis-Sabinene hydrate	7.03*	1432.0	[0.23]	5.00	1065.6	tr
cis-Linalool oxide (fur.)	6.65	1404.7	0.21	5.09	1071.7	0.21
Isoterpinolene	4.37*	1239.2	[0.29]	5.28	1083.4	0.01
trans-Linalool oxide (fur.)	7.03*	1432.0	[0.23]	5.34*	1087.4	[0.49]
Terpinolene	4.37*	1239.2	[0.29]	5.34*	1087.4	[0.49]
Rosefuran	6.11	1365.8	0.02	5.53	1099.3	0.01
Linalool	8.22*†	1520.5	[45.19]	5.65	1106.9	43.91
Phenylethyl alcohol	12.28	1851.7	0.12	5.72	1111.6	0.12
cis-para-Menth-2-en-1-ol	8.24*†	1522.0	[3.48]	5.84	1119.5	0.04
allo-Ocimene	5.67	1335.2	0.07	6.03	1131.6	0.09
Benzeneacetonitrile	12.32	1855.2	0.07	6.05	1133.2	0.11
trans-Pinocarveol	9.30	1603.6	0.03	6.10	1136.2	0.01

Camphor	7.32	1453.8	0.11	6.13*	1137.8	[0.12]
neo-allo-Ocimene	5.95	1355.0	0.02	6.13*	1137.8	[0.12]
trans-para-Menth-2-en-1-ol	9.07	1585.4	0.04	6.13*	1137.8	[0.12]
(*E*)-Myroxide	7.21*	1445.6	[0.02]	6.20	1142.8	0.03
Borneol	9.91*	1652.1	[5.02]	6.50	1162.0	0.05
cis-Linalool oxide (pyr.)	10.48*	1697.7	[0.02]	6.54	1164.5	0.03
δ-Terpineol	9.59†	1626.7	0.08	6.59	1167.5	0.02
Terpinen-4-ol	8.69	1556.3	0.11	6.69	1174.2	0.12
para-Cymen-8-ol	11.67	1798.2	0.02	6.84	1183.8	0.02
α-Terpineol	9.91*	1652.1	[5.02]	6.93	1189.4	4.97
Hodiendiol (2,6-dimethylocta-3,7-diene-2,6-diol)	12.92	1909.5	0.08	7.00	1194.0	0.03
Safranal	8.93*	1574.3	[0.03]	7.04	1196.6	0.03
Lilac alcohol A	10.00*	1659.7	[0.03]	7.18	1206.0	0.02
(3*E*,5*E*)-2,6-Dimethylocta-3,5,7-trien-2-ol	11.48	1782.0	0.03	7.25	1210.3	0.03
Linalyl formate	8.50*	1541.8	[0.58]	7.35	1217.3	0.03
Nerol	11.19*	1757.5	[1.21]	7.53	1229.6	1.08
Citronellol	10.85	1729.2	0.02	7.58	1232.5	0.02
Neral	9.62†	1629.3	0.03	7.69	1240.0	0.04
Phenylethyl acetate	11.19*	1757.5	[1.21]	7.92	1255.3	0.11
Linalyl acetate	8.24*†	1522.0	[3.48]	7.99*†	1260.6	[4.77]
Geraniol	11.76*	1806.0	[2.23]	7.99*†	1260.6	[4.77]
Geranial	10.22	1677.0	0.04	8.14*	1270.7	[0.05]
(*trans*?)-Linalool oxide acetate (fur.)?	8.79	1564.0	0.02	8.14*	1270.7	[0.05]
2,6-Dimethyl-1,7-octadiene-3,6-diol	14.77	2083.0	0.04	8.27	1279.1	0.02
Bornyl acetate	8.31	1527.5	0.02	8.34*	1284.0	[0.05]
Safrole	11.76*	1806.0	[2.23]	8.34*	1284.0	[0.05]
Indole	17.41	2355.0	0.22	8.39	1287.4	0.21
Geranyl formate	10.00*	1659.7	[0.03]	8.64	1304.5	0.02
Methyl anthranilate	15.52*	2158.0	[0.37]	9.06	1334.2	0.35
Linalyl propionate	8.93*	1574.3	[0.03]	9.10	1336.9	0.03
α-Terpinyl acetate	9.80	1643.5	0.05	9.28	1349.2	0.05
Eugenol	14.91*	2096.5	[0.03]	9.39	1357.1	0.02
Neryl acetate	10.29	1682.5	1.35	9.54	1368.1	1.34
α-Copaene	7.21*	1445.6	[0.02]	9.62	1373.7	0.02
Geranyl acetate	10.66	1713.2	2.77	9.82	1387.6	2.77
β-Elemene	8.50*	1541.8	[0.58]	9.86	1390.8	0.02
(*Z*)-Jasmone	12.53	1874.1	0.02	9.91	1394.6	0.02

Dimethyl anthranilate	13.81	1990.8	0.08	10.00	1400.9	0.07
β-Caryophyllene	8.50*	1541.8	[0.58]	10.19	1414.3	0.55
α-Humulene	9.36	1608.5	0.05	10.64	1448.3	0.05
(*E*)-β-Farnesene	9.66	1631.9	tr	10.80	1460.2	0.03
Germacrene D	9.86	1648.2	0.03	11.02	1476.5	0.03
Bicyclogermacrene	10.14	1670.4	0.05	11.22	1491.8	0.06
(3*E*,6*E*)-α-Farnesene	10.59	1707.6	0.02	11.48*	1511.1	[0.02]
γ-Cadinene	10.48*	1697.7	[0.02]	11.48*	1511.1	[0.02]
δ-Cadinene	10.50	1700.1	0.03	11.61	1522.0	0.03
α-Elemol	14.14	2022.7	0.02	11.91	1545.7	0.05
(*E*)-Nerolidol	13.88	1997.8	1.54	12.16	1565.3	1.55
Spathulenol	14.50	2056.9	0.04	12.23	1570.9	0.04
Caryophyllene oxide	12.86	1903.9	0.07	12.28*	1574.8	[0.12]
Caryophyllene oxide isomer	12.79	1897.1	0.02	12.28*	1574.8	[0.12]
Selin-6-en-4α-ol isomer	14.91*	2096.5	[0.03]	12.74	1611.0	0.03
α-Bisabolol	15.58	2163.8	0.03	13.59	1681.8	0.02
(2*E*,6*Z*)-Farnesol	16.53	2261.6	0.03	13.79	1698.7	0.02
Heptadecane	10.41	1692.6	0.02	13.88	1705.7	0.02
(2*E*,6*Z*)-Farnesal	15.43	2148.6	0.02	13.96	1713.3	0.02
(2*E*,6*E*)-Farnesol	16.92*	2302.8	[1.39]	14.07	1722.5	1.33
(2*E*,6*E*)-Farnesal	15.92	2198.2	0.03	14.28	1740.6	0.03
(*E*)-α-Atlantone	16.50	2258.0	0.02	14.60	1768.8	0.02
(2*E*,6*E*)-Farnesyl acetate	16.02	2208.6	0.02	15.44	1843.2	0.03
meta-Camphorene	15.52*	2158.0	[0.37]	16.61	1952.6	0.02
para-Camphorene	15.98	2204.4	0.05	16.90	1980.8	0.04
Tricosane	16.92*	2302.8	[1.39]	20.05	2305.9	0.01
Pentacosane				21.79	2505.7	0.01
Total reported		99.09%			97.19%	

*: 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