Date : 2026-04-24

Certificate of Analysis - GC Profiling

Sample Identification

Internal code : 26C23-PTH04
Customer Identification : Neroli - Egypt/Tunisia - N10114
Type : Essential Oil
Source : *Citrus aurantium subsp. amara*
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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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 2026-03-30 to make a correction 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 : 2026-03-26

Physicochemical data

Refractive index : 1.4697 ± 0.0003 (20 °C)
Method : PC-MAT-016 - Measure of the refractive index of a liquid.
Analyst : Cindy Caron B. Sc.
Date : 2026-03-24

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	0.01	Aliphatic alcohol
(2*E*)-Hexenol	tr	Aliphatic alcohol
Hexanol	0.01	Aliphatic alcohol
Tricyclene	tr	Monoterpene
α-Thujene	0.02	Monoterpene
α-Pinene	1.27	Monoterpene
Camphene	0.04	Monoterpene
Benzaldehyde	0.01	Simple phenolic
Sabinene	2.16	Monoterpene
β-Pinene	8.51	Monoterpene
6-Methyl-5-hepten-2-one	0.01	Aliphatic ketone
Myrcene	1.00	Monoterpene
α-Phellandrene	0.12	Monoterpene
Δ3-Carene	0.02	Monoterpene
α-Terpinene	0.02	Monoterpene
para-Cymene	0.05	Monoterpene
Limonene	13.50	Monoterpene
1,8-Cineole	0.12	Monoterpenic ether
β-Phellandrene	0.05	Monoterpene
(*Z*)-β-Ocimene	1.37	Monoterpene
(*E*)-β-Ocimene	3.72	Monoterpene
γ-Terpinene	0.05	Monoterpene
cis-Sabinene hydrate	0.01	Monoterpenic alcohol
cis-Linalool oxide (fur.)	0.19	Monoterpenic alcohol
Terpinolene	0.29	Monoterpene
trans-Linalool oxide (fur.)	0.19	Monoterpenic alcohol
Rosefuran	0.01	Monoterpenic ether
Linalool	43.44	Monoterpenic alcohol
Phenylethyl alcohol	0.11	Simple phenolic
cis-para-Menth-2-en-1-ol	0.03	Monoterpenic alcohol
allo-Ocimene	0.10	Monoterpene
Benzeneacetonitrile	0.07	Simple phenolic
(*Z*)-Myroxide	0.02	Monoterpenic ether
neo-allo-Ocimene	0.02	Monoterpene
Camphor	0.09	Monoterpenic ketone
(*E*)-Myroxide	0.03	Monoterpenic ether
Lilac aldehyde A	0.01	Monoterpenic aldehyde
Borneol	0.05	Monoterpenic alcohol

Terpinen-4-ol	0.12	Monoterpenic alcohol
para-Cymen-8-ol	0.01	Monoterpenic alcohol
α-Terpineol	4.85	Monoterpenic alcohol
Hodiendiol (2,6-dimethylocta-3,7-diene-2,6-diol)	0.07	Monoterpenic alcohol
Safranal	0.02	Monoterpenic aldehyde
Lilac alcohol A	0.02	Monoterpenic alcohol
(3*E*,5*E*)-2,6-Dimethylocta-3,5,7-trien-2-ol	0.02	Monoterpenic alcohol
Linalyl formate	0.02	Monoterpenic ester
Nerol	1.01	Monoterpenic alcohol
Citronellol	0.03	Monoterpenic alcohol
Neral	0.03	Monoterpenic aldehyde
Phenylethyl acetate	0.11	Phenolic ester
Geraniol	2.36	Monoterpenic alcohol
Linalyl acetate	4.89	Monoterpenic ester
(*trans*?)-Linalool oxide acetate (fur.)?	0.01	Monoterpenic ester
Geranial	0.03	Monoterpenic aldehyde
2,6-Dimethyl-1,7-octadiene-3,6-diol	0.05	Monoterpenic alcohol
Bornyl acetate	0.01	Monoterpenic ester
Indole	0.22	Indole
1-Nitro-2-phenylethane	0.01	Simple phenolic
δ-Elemene	0.02	Sesquiterpene
Methyl anthranilate	0.34	Phenolic ester
Linalyl propionate	0.02	Monoterpenic ester
Hodiendiol derivative	0.01	Oxygenated monoterpene
α-Terpinyl acetate	0.03	Monoterpenic ester
Eugenol	0.01	Phenylpropanoid
Neryl acetate	1.35	Monoterpenic ester
α-Copaene	0.01	Sesquiterpene
Geranyl acetate	2.73	Monoterpenic ester
β-Elemene	0.02	Sesquiterpene
(*Z*)-Jasmone	0.01	Jasmonate
Dimethyl anthranilate	0.07	Phenolic ester
β-Caryophyllene	0.56	Sesquiterpene
α-Humulene	0.04	Sesquiterpene
Geranylacetone	0.01	Monoterpenic ketone
(*E*)-β-Farnesene	0.03	Sesquiterpene
Germacrene D	0.02	Sesquiterpene
Bicyclogermacrene	0.06	Sesquiterpene
γ-Cadinene	0.01	Sesquiterpene
(3*E*,6*E*)-α-Farnesene	0.01	Sesquiterpene
trans-Calamenene	0.01	Sesquiterpene
δ-Cadinene	0.01	Sesquiterpene
(*E*)-Nerolidol	1.52	Sesquiterpenic alcohol
Spathulenol	0.02	Sesquiterpenic alcohol

Caryophyllene oxide	0.09	Sesquiterpenic ether
α-Bisabolol	0.01	Sesquiterpenic alcohol
(2*E*,6*Z*)-Farnesol	0.02	Sesquiterpenic alcohol
(2*E*,6*Z*)-Farnesal	0.01	Sesquiterpenic aldehyde
(2*E*,6*E*)-Farnesol	1.32	Sesquiterpenic alcohol
(2*E*,6*E*)-Farnesal	0.02	Sesquiterpenic aldehyde
(2*E*,6*E*)-Farnesyl acetate	0.02	Sesquiterpenic ester
Unknown	0.06	Unknown
Nonadecane	0.01	Alkane
meta-Camphorene	0.02	Diterpene
Tricosane	0.01	Alkane
Pentacosane	0.01	Alkane
Squalene	0.01	Triterpene
Consolidated total	**99.18**	

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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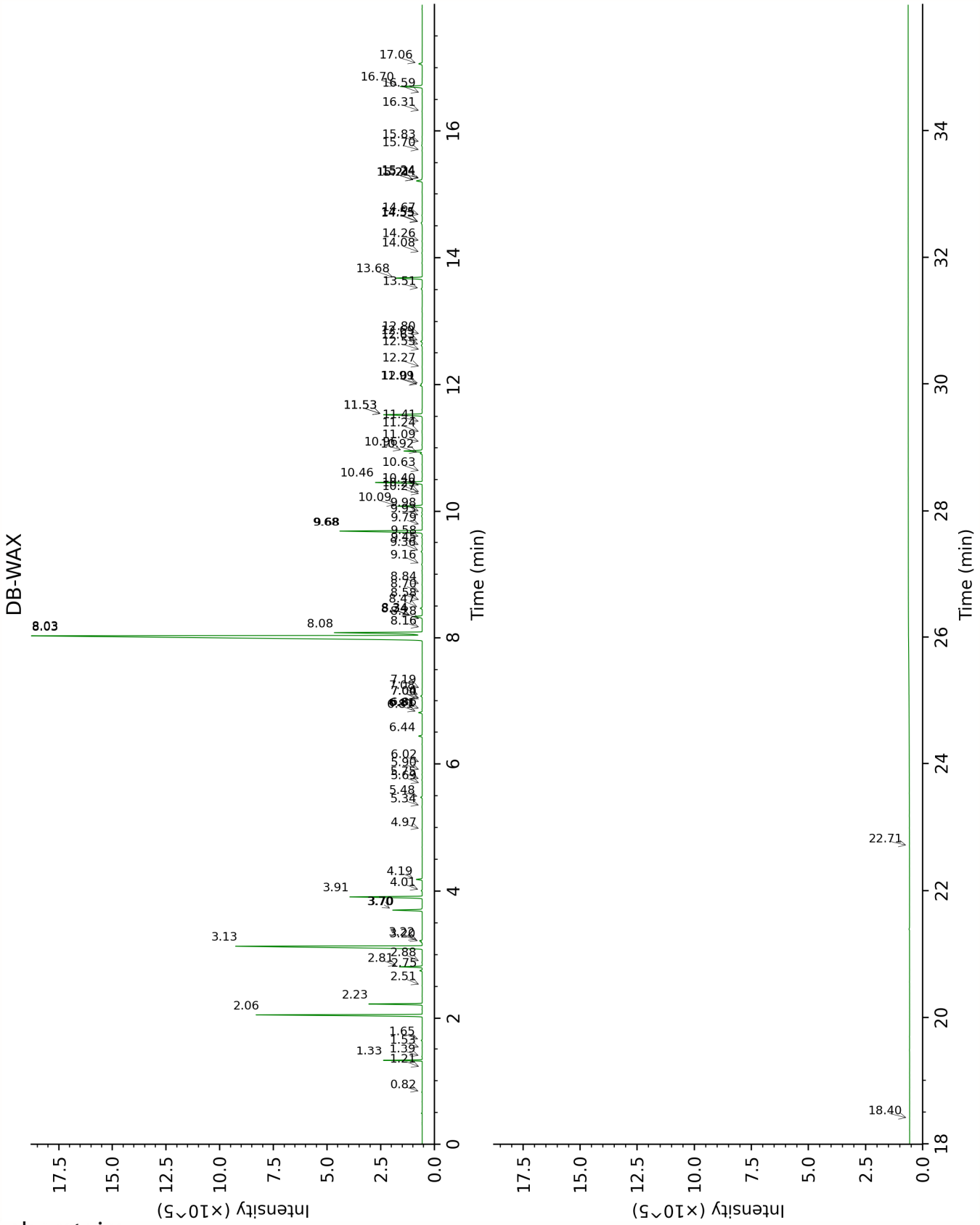
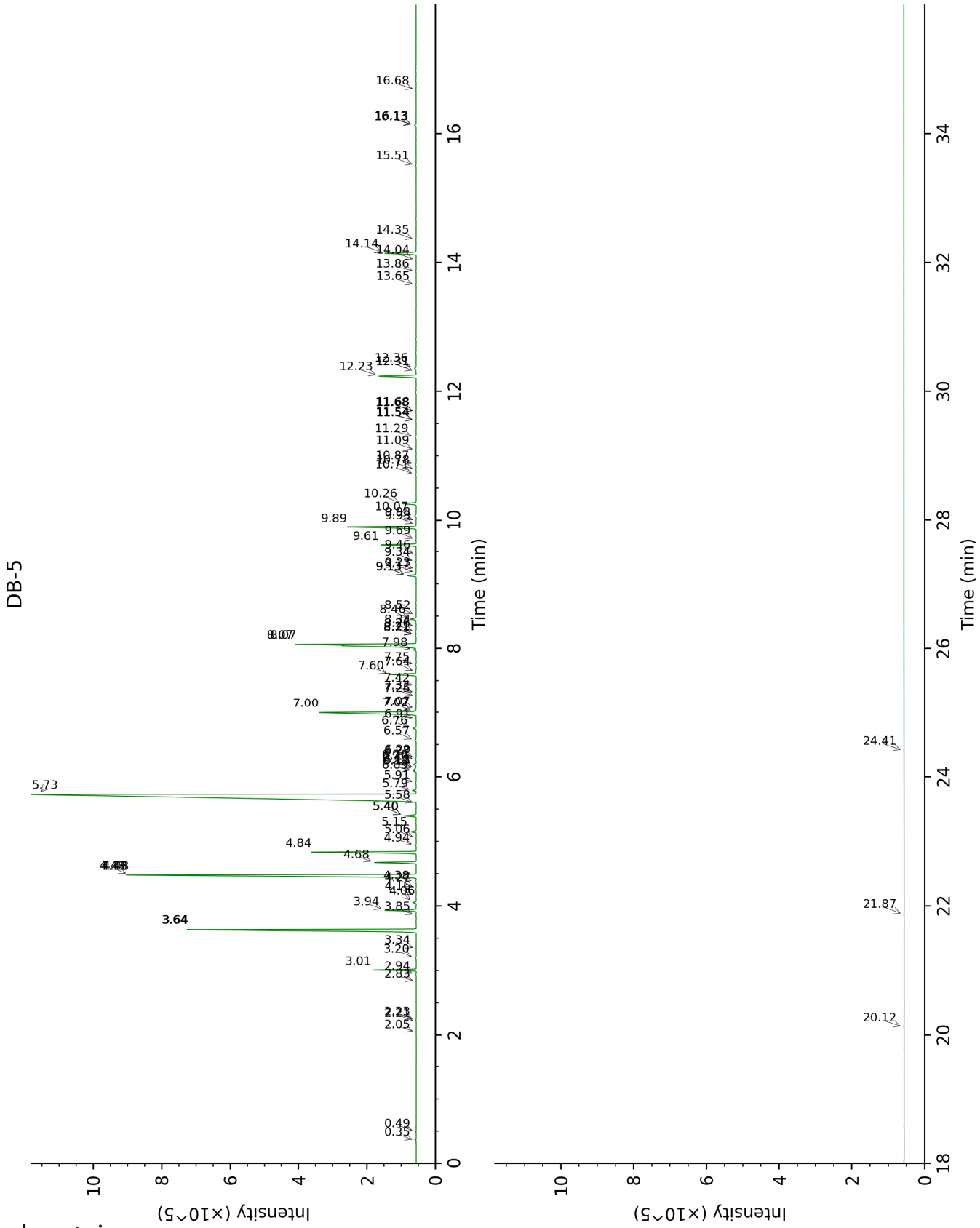

DB-WAX
Time (min)
Intensity (×10^5)
17.06
16.70
16.59
16.31
15.83
15.70
14.67
14.55
14.26
14.08
13.68
13.51
12.80
12.27
11.53
11.41
11.24
11.09
10.92
10.63
10.46
10.40
10.09
9.75
9.68
9.58
9.30
9.16
8.84
8.79
8.34
8.16
8.08
8.03
7.19
6.44
6.02
5.90
5.69
5.48
5.34
4.97
4.19
4.01
3.91
3.70
3.13
2.88
2.81
2.75
2.51
2.23
2.06
1.65
1.39
1.33
1.21
0.82
22.71
18.40


DB-5
Time (min)
Intensity (×10^5)
16.68
16.13
15.51
14.35
14.14
14.04
13.86
13.65
12.36
12.23
11.68
11.54
11.29
11.09
10.26
9.89
9.61
9.69
8.52
8.46
8.07
7.98
7.60
7.00
6.76
6.57
5.73
5.58
5.40
5.15
5.06
4.94
4.84
4.68
3.94
3.85
3.64
3.34
3.20
3.01
2.94
2.83
2.05
0.49
0.35
24.41
21.87
20.12

FULL ANALYSIS DATA

Ethanol	Column DB-WAX			Column DB-5		
	0.82	910.7	0.01	0.35	506.7	0.01
2-Methyl-3-buten-2-ol	1.53	1016.0	0.01	0.50	607.2	0.01
(3*Z*)-Hexenol	5.69	1346.3	0.01	2.05	856.4	0.01
(2*E*)-Hexenol	6.02	1370.4	0.01	2.20	869.9	tr
Hexanol	5.34	1321.0	0.01	2.23	872.3	0.01
Tricyclene	1.21	972.3	tr	2.83	918.9	tr
α-Thujene	1.39	1000.9	0.02	2.94	926.5	0.02
α-Pinene	1.33	991.2	1.27	3.01	931.2	1.27
Camphene	1.65	1028.1	0.04	3.20	943.8	0.04
Benzaldehyde	7.19	1457.4	0.01	3.34	953.1	0.01
Sabinene	2.22	1084.7	2.16	3.64*	973.1	[10.76]
β-Pinene	2.06	1067.8	8.51	3.64*	973.1	[10.76]
6-Methyl-5-hepten-2-one	4.97	1299.1	0.02	3.85	987.7	0.01
Myrcene	2.81	1134.5	0.99	3.94	993.3	1.00
α-Phellandrene	2.75	1129.8	0.11	4.06	1001.4	0.12
Δ3-Carene	2.51	1111.2	0.01	4.16	1007.9	0.02
α-Terpinene	2.88	1140.1	0.02	4.27	1015.0	0.02
para-Cymene	4.01	1227.6	0.05	4.38	1022.3	0.05
Limonene	3.14	1160.1	13.50	4.48*	1028.7	[13.79]
1,8-Cineole	3.22	1166.8	0.12	4.48*	1028.7	[13.79]
β-Phellandrene	3.20	1165.1	0.05	4.48*	1028.7	[13.79]
(*Z*)-β-Ocimene	3.70*	1205.1	[1.39]	4.68	1041.0	1.37
(*E*)-β-Ocimene	3.91	1220.4	3.68	4.84	1051.2	3.72
γ-Terpinene	3.70*	1205.1	[1.39]	4.94	1057.9	0.05
cis-Sabinene hydrate	6.81*	1428.9	[0.20]	5.06	1065.0	0.01
cis-Linalool oxide (fur.)	6.44	1401.2	0.19	5.15	1071.2	0.19
Terpinolene	4.19	1240.7	0.29	5.40*	1086.9	[0.47]
trans-Linalool oxide (fur.)	6.81*	1428.9	[0.20]	5.40*	1086.9	[0.47]
Rosefuran	5.90	1361.8	0.01	5.58	1098.7	0.01
Linalool	8.03*	1521.1	[43.62]	5.73	1108.1	43.44
Phenylethyl alcohol	11.99	1848.5	0.12	5.79	1112.1	0.11
cis-para-Menth-2-en-1-ol	8.03*	1521.1	[43.62]	5.91	1119.9	0.03
allo-Ocimene	5.48	1331.2	0.09	6.09	1131.6	0.10
Benzeneacetonitrile	12.01	1850.5	0.07	6.12	1133.3	0.07
(*Z*)-Myroxide	6.81*	1428.9	[0.20]	6.14	1134.3	0.02
neo-allo-Ocimene	5.75	1351.1	0.02	6.20*	1138.2	[0.10]
Camphor	7.08	1449.3	0.09	6.20*	1138.2	[0.10]

(*E*)-Myroxide	7.00	1443.2	0.01	6.27	1142.8	0.03
Lilac aldehyde A				6.29	1144.5	0.01
Borneol	9.68*	1652.1	[4.90]	6.57	1162.3	0.05
Terpinen-4-ol	8.47	1555.0	0.11	6.76	1174.7	0.12
para-Cymen-8-ol	11.41	1797.3	0.02	6.91	1184.7	0.01
α-Terpineol	9.68*	1652.1	[4.90]	7.00	1190.6	4.85
Hodiendiol (2,6-dimethylocta-3,7-diene-2,6-diol)	12.69	1911.5	0.08	7.02	1191.6	0.07
Safranal	8.84	1583.9	0.02	7.06	1194.8	0.02
Lilac alcohol A	9.79	1660.6	0.01	7.25	1206.9	0.02
(3*E*,5*E*)-2,6-Dimethylocta-3,5,7-trien-2-ol	11.24	1783.1	0.02	7.32	1211.3	0.02
Linalyl formate	8.34*	1544.7	[0.57]	7.42	1218.2	0.02
Nerol	10.96	1758.5	1.02	7.60	1230.9	1.01
Citronellol	10.63	1730.5	0.02	7.64	1233.5	0.03
Neral	9.36	1625.7	0.07	7.75	1241.0	0.03
Phenylethyl acetate	10.92	1755.2	0.11	7.98	1256.9	0.11
Geraniol	11.53*	1807.3	[2.20]	8.07*	1262.7	[7.26]
Linalyl acetate	8.08	1525.0	4.89	8.07*	1262.7	[7.26]
(*trans*?)-Linalool oxide acetate (fur.)?	8.58	1564.1	0.01	8.21*	1272.4	[0.05]
Geranial	9.98	1676.8	0.03	8.21*	1272.4	[0.05]
2,6-Dimethyl-1,7-octadiene-3,6-diol	14.55*	2087.7	[0.09]	8.26	1275.9	0.05
Bornyl acetate	8.16	1530.7	0.01	8.34	1281.2	0.01
Indole	17.06	2346.9	0.22	8.46	1289.5	0.22
1-Nitro-2-phenylethane	14.08	2042.1	0.03	8.52	1293.7	0.01
δ-Elemene	6.86	1432.7	0.02	9.13*	1333.6	[0.36]
Methyl anthranilate	15.21*	2153.4	[0.38]	9.13*	1333.6	[0.36]
Linalyl propionate	8.70	1573.5	0.01	9.17	1336.4	0.02
Hodiendiol derivative	12.80	1921.4	0.01	9.24	1340.8	0.01
α-Terpinyl acetate	9.58	1644.0	0.03	9.34	1348.4	0.03
Eugenol	14.67	2099.1	0.02	9.46	1356.6	0.01
Neryl acetate	10.09	1685.2	1.36	9.61	1367.4	1.35
α-Copaene	7.04	1445.6	0.01	9.69	1373.0	0.01
Geranyl acetate	10.46	1716.2	2.72	9.89	1387.3	2.73
β-Elemene	8.28	1540.5	0.01	9.93	1390.4	0.02
(*Z*)-Jasmone	12.27	1874.0	0.02	9.98	1394.2	0.01
Dimethyl anthranilate	13.51	1988.0	0.08	10.07	1400.4	0.07
β-Caryophyllene	8.34*	1544.7	[0.57]	10.26	1414.2	0.56

α-Humulene	9.16	1609.1	0.04	10.71	1448.3	0.04
Geranylacetone	11.53*	1807.3	[2.20]	10.78	1453.6	0.01
(*E*)-β-Farnesene	9.45	1633.0	0.03	10.87	1459.9	0.03
Germacrene D	9.68*	1652.1	[4.90]	11.08	1476.2	0.02
Bicyclogermacrene	9.93	1672.4	0.05	11.30	1492.0	0.06
γ-Cadinene	10.27	1699.9	0.01	11.54*	1510.9	[0.01]
(3*E*,6*E*)-α-Farnesene	10.40	1711.4	0.01	11.54*	1510.9	[0.01]
trans-Calamenene	11.09	1770.3	0.01	11.68*	1521.4	[0.02]
δ-Cadinene	10.29	1702.1	0.01	11.68*	1521.4	[0.02]
(*E*)-Nerolidol	13.68	2003.8	1.51	12.24	1565.6	1.52
Spathulenol	14.26	2059.8	0.02	12.31	1571.2	0.02
Caryophyllene oxide	12.63	1905.7	0.06	12.36	1575.3	0.09
α-Bisabolol	15.24*	2156.3	[0.02]	13.65	1681.2	0.01
(2*E*,6*Z*)-Farnesol	16.31	2266.8	0.02	13.86	1698.7	0.02
(2*E*,6*Z*)-Farnesal	15.21*	2153.4	[0.38]	14.04	1713.5	0.01
(2*E*,6*E*)-Farnesol	16.70	2308.2	1.35	14.14	1722.9	1.32
(2*E*,6*E*)-Farnesal	15.70	2202.6	0.02	14.35	1740.6	0.02
(2*E*,6*E*)-Farnesyl acetate	15.83	2216.0	0.02	15.51	1843.5	0.02
Unknown COGU XXIII [m/z 93, 69 (93), 109 (84), 135 (82), 203 (74), 41 (49)...]	14.55*	2087.7	[0.09]	16.13*	1900.3	[0.07]
Nonadecane	12.55	1898.8	0.01	16.13*	1900.3	[0.07]
meta-Camphorene	15.24*	2156.3	[0.02]	16.68	1952.5	0.02
Tricosane	16.59	2296.3	0.01	20.12	2304.3	0.01
Pentacosane	18.40	2495.4	0.01	21.87	2503.7	0.01
Squalene	22.71	3030.2	0.01	24.41	2820.3	0.01
Total reported		99.05%			99.36%	

*: 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