

Date : 2026-10-07

CERTIFICATE OF ANALYSIS - GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 26I15-PTH01

Customer Identification : Nutmeg - Malaysia - N40115

Type : Essential Oil

Source : *Myristica fragrans*

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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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 2026-09-16 to make a modification in the sample identification section.

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 : 2026-09-16

PHYSICOCHEMICAL DATA

Refractive index : 1.4775 ± 0.0003 (20 °C)

Method : PC-MAT-016 - Measure of the refractive index of a liquid.

Analyst : Cindy Caron B. Sc.

Date : 2026-09-15

CONCLUSION

No adulterant, contaminant or diluent has been detected using this method.

ANALYSIS SUMMARY - CONSOLIDATED CONTENTS

New readers of similar reports are encouraged to read table footnotes at least once.

Identification	%	Class
Toluene	tr	Simple phenolic
Hashishene	0.04	Monoterpene
Tricyclene	0.02	Monoterpene
α -Thujene	1.10	Monoterpene
α -Pinene	25.91	Monoterpene
α -Fenchene	0.05	Monoterpene
Camphene	0.25	Monoterpene
Thuja-2,4(10)-diene	0.02	Monoterpene
3,7,7-Trimethylcyclohepta-1,3,5-triene	0.02	Monoterpene
Sabinene	17.65	Monoterpene
β -Pinene	19.29	Monoterpene
Octen-3-ol	0.04	Aliphatic alcohol
Unknown	0.02	Monoterpene
6-Methyl-5-hepten-2-one	0.01	Aliphatic ketone
Myrcene	3.03	Monoterpene
2-Carene	0.04	Monoterpene
α -Phellandrene	0.34	Monoterpene
Pseudolimonene	0.12	Monoterpene
Δ^3 -Carene	0.69	Monoterpene
α -Terpinene	1.26	Monoterpene
Carvomenthene	0.02	Aliphatic alcohol
<i>para</i> -Cymene	2.80	Monoterpene
β -Phellandrene	0.77	Monoterpene
Limonene	5.00	Monoterpene
1,8-Cineole	1.79	Monoterpenic ether
(Z)- β -Ocimene	0.01	Monoterpene
(E)- β -Ocimene	0.03	Monoterpene
γ -Terpinene	1.61	Monoterpene
<i>cis</i> -Sabinene hydrate	0.10	Monoterpenic alcohol
Unknown	0.01	Oxygenated monoterpene
<i>para</i> -Cymenene	0.03	Monoterpene
<i>trans</i> -Linalool oxide (fur.)	tr	Monoterpenic alcohol
Terpinolene	0.80	Monoterpene
α -Pinene oxide	0.02	Monoterpenic ether
<i>trans</i> -Sabinene hydrate	0.07	Monoterpenic alcohol
Unknown	0.02	Oxygenated monoterpene
Linalool	0.15	Monoterpenic alcohol
Unknown	0.01	Monoterpenic alcohol
endo-Fenchol	0.03	Monoterpenic alcohol
<i>para</i> -Mentha-1,3,8-triene	0.01	Monoterpene

<i>cis-para</i> -Menth-2-en-1-ol	0.08	Monoterpenic alcohol
4-Hydroxy-4-methylcyclohex-2-enone	0.01	Aliphatic alcohol
<i>trans</i> -Pinocarveol	0.06	Monoterpenic alcohol
1-Terpineol	0.02	Monoterpenic alcohol
Camphor	tr	Monoterpenic ketone
<i>trans-para</i> -Menth-2-en-1-ol	0.06	Monoterpenic alcohol
<i>cis</i> - β -Terpineol	0.02	Monoterpenic alcohol
Epoxyterpinolene	0.02	Monoterpenic ether
<i>trans</i> -Verbenol	0.03	Monoterpenic alcohol
Unknown	0.01	Unknown
Sabinaketone	0.02	Normonoterpenic ketone
Pinocarpone	0.01	Monoterpenic ketone
<i>trans</i> - β -Terpineol	0.01	Monoterpenic alcohol
Borneol	0.04	Monoterpenic alcohol
δ -Terpineol	0.01	Monoterpenic alcohol
Terpinen-4-ol	4.72	Monoterpenic alcohol
Cryptone	0.01	Normonoterpenic ketone
<i>para</i> -Cymen-8-ol	0.04	Monoterpenic alcohol
Myrtenal	0.01	Monoterpenic aldehyde
α -Terpineol	0.52	Monoterpenic alcohol
<i>cis</i> -Piperitol	0.05	Monoterpenic alcohol
Myrtenol	0.02	Monoterpenic alcohol
<i>cis</i> - α -Phellandrene epoxide (iPr vs Me)	0.01	Monoterpenic ether
<i>trans</i> -Piperitol	0.02	Monoterpenic alcohol
endo-Fenchyl acetate	0.01	Monoterpenic ester
Citronellol	0.01	Monoterpenic alcohol
Unknown	0.01	Oxygenated monoterpene
Unknown	0.04	Unknown
Geraniol	0.02	Monoterpenic alcohol
Linalyl acetate	0.01	Monoterpenic ester
<i>trans</i> -Ascaridole glycol	0.02	Monoterpenic alcohol
Phellandral	0.01	Monoterpenic aldehyde
Safrole	0.86	Phenylpropanoid
Bornyl acetate	0.06	Monoterpenic ester
Cuminol	0.01	Monoterpenic alcohol
Unknown	0.03	Unknown
Thymol	0.01	Monoterpenic alcohol
Carvacrol	0.01	Monoterpenic alcohol
Unknown	0.10	Simple phenolic
4-Vinylguaiaicol	0.01	Simple phenolic
Unknown	0.02	Monoterpenic alcohol
Unknown	0.01	Unknown
α -Terpinyl acetate	0.06	Monoterpenic ester
α -Cubebene	0.04	Sesquiterpene
Eugenol	0.16	Phenylpropanoid

Citronellyl acetate	0.05	Monoterpenic ester
Neryl acetate	0.01	Monoterpenic ester
α -Copaene	0.16	Sesquiterpene
Geranyl acetate	0.11	Monoterpenic ester
β -Cubebene	0.01	Sesquiterpene
β -Elemene	0.03	Sesquiterpene
Methyleugenol	0.13	Phenylpropanoid
β -Caryophyllene	3.13	Sesquiterpene
<i>cis</i> - α -Bergamotene	0.01	Sesquiterpene
<i>trans</i> - α -Bergamotene	0.05	Sesquiterpene
(<i>E</i>)-Isoeugenol	0.26	Phenylpropanoid
(<i>E</i>)- β -Farnesene	0.01	Sesquiterpene
<i>trans</i> -Cadina-1(6),4-diene	0.01	Sesquiterpene
γ -Murolene	0.01	Sesquiterpene
Germacrene D	0.02	Sesquiterpene
<i>trans</i> -Muurolo-4(15),5-diene	0.01	Sesquiterpene
Bicyclogermacrene	0.01	Sesquiterpene
α -Murolene	0.02	Sesquiterpene
Methyl (<i>E</i>)-isoeugenol	0.01	Phenylpropanoid
β -Bisabolene	0.03	Sesquiterpene
(3 <i>E</i> ,6 <i>E</i>)- α -Farnesene	0.02	Sesquiterpene
Myristicin	4.44	Phenylpropanoid
<i>trans</i> -Calamenene	0.01	Sesquiterpene
δ -Cadinene	0.03	Sesquiterpene
Unknown	0.02	Unknown
<i>trans</i> -Cadina-1,4-diene	0.01	Sesquiterpene
Elemicin	0.15	Phenylpropanoid
Spathulenol	0.01	Sesquiterpenic alcohol
Caryophyllene oxide isomer	0.03	Sesquiterpenic ether
Caryophyllene oxide	0.08	Sesquiterpenic ether
Methoxyeugenol	0.17	Phenylpropanoid
Myristic acid	0.11	Aliphatic acid
<i>meta</i> -Camphorene	0.03	Diterpene
<i>para</i> -Camphorene	0.02	Diterpene
Consolidated total	99.70	

tr: The compound has been detected below 0.005% of the total signal

Note: no correction factor was applied

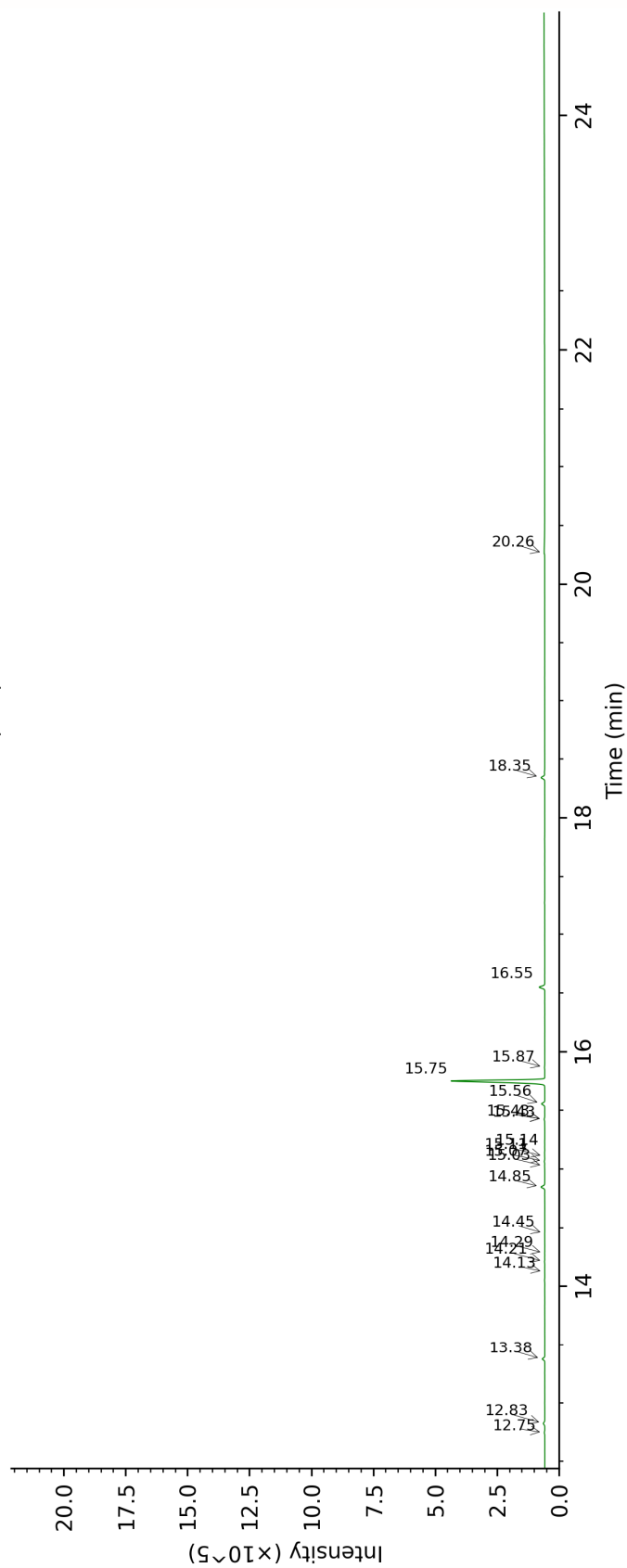
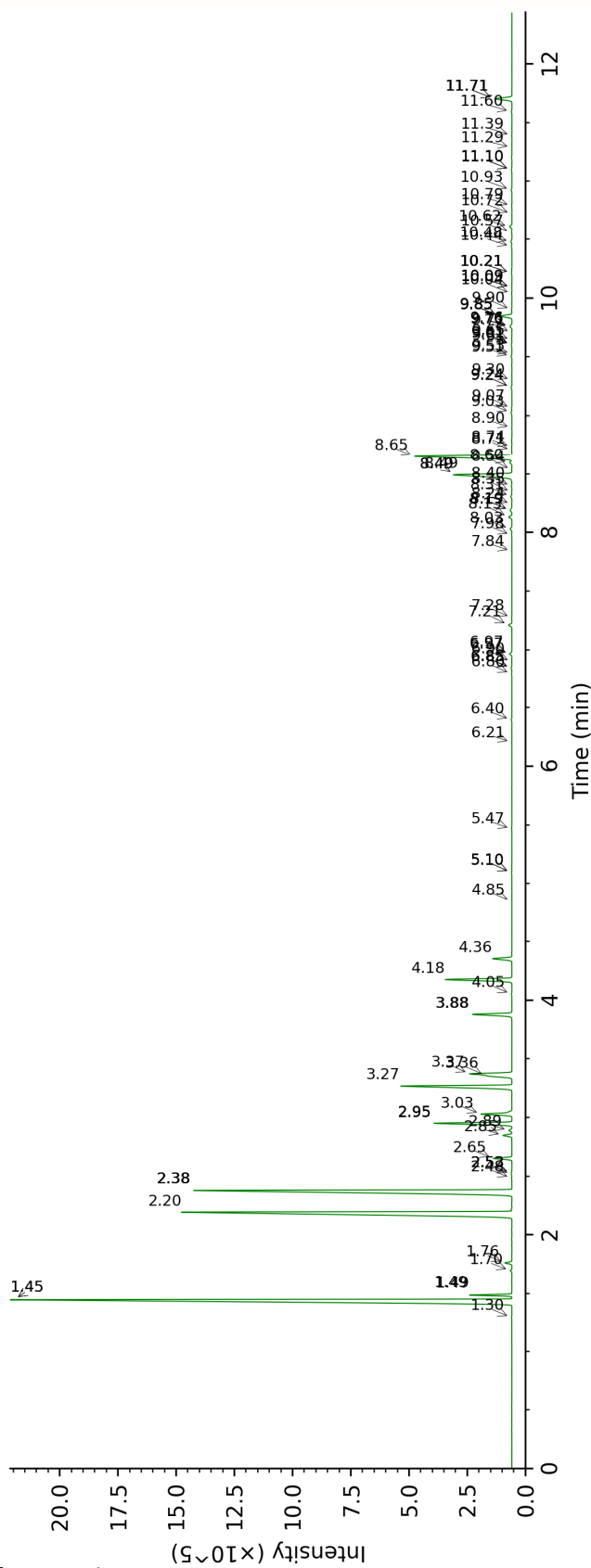
About "consolidated" data: The table above presents the breakdown of the sample volatile constituents after applying an algorithm to collapse data acquired from the multi-columns system of PhytoChemia into a single set of consolidated contents. In case of discrepancies between columns, the algorithm 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.

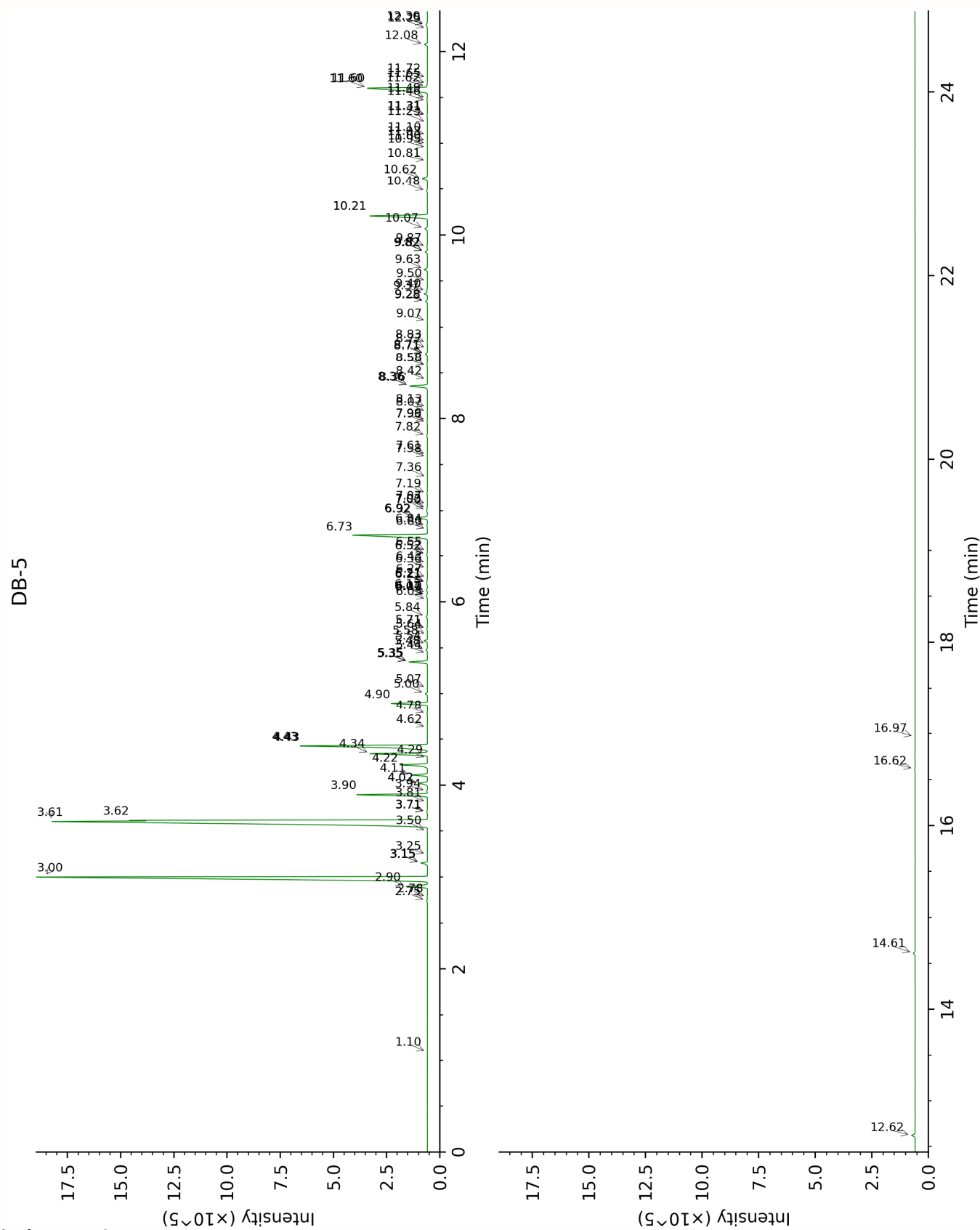
Unknowns: Unknown compounds' mass spectral data is presented in the "Full analysis data" table. The occurrence of unknown compounds is to be expected in many samples, and does not denote particular problems unless noted otherwise in the conclusion.

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

This page was intentionally left blank. The following pages present the complete data of the analysis.

DB-WAX





FULL ANALYSIS DATA

Toluene	Column DB-WAX			Column DB-5		
	1.49*	1001.3	[1.10]	1.10	759.4	tr
Hashishene	1.45*	997.2	[25.99]	2.74	916.5	0.04
Tricyclene	1.30	973.2	0.02	2.78	919.1	0.02
α -Thujene	1.49*	1001.3	[1.10]	2.90	927.0	1.10
α -Pinene	1.45*	997.2	[25.99]	3.00	933.8	25.91
α -Fenchene	1.70	1021.5	0.05	3.16*	944.1	[0.31]
Camphene	1.76	1027.9	0.25	3.16*	944.1	[0.31]
Thuja-2,4(10)-diene	2.38*	1088.3	[17.61]	3.25	950.4	0.02
3,7,7-Trimethylcyclohepta-1,3,5-triene	2.95*	1135.1	[3.03]	3.50	967.0	0.02
Sabinene	2.38*	1088.3	[17.61]	3.61*†	974.4	[30.62]
β -Pinene	2.20	1070.2	19.29	3.62*†	975.3	[6.32]
Octen-3-ol	6.85*	1421.1	[0.04]	3.71*	981.5	[0.06]
Unknown ORVU I [m/z 93, 79 (73), 67 (49), 95 (42), 91 (41), 121 (38)...]	2.52	1101.0	0.02	3.71*	981.5	[0.06]
6-Methyl-5-hepten-2-one	5.10*	1297.9	[0.03]	3.81	988.4	0.01
Myrcene	2.95*	1135.1	[3.03]	3.90	994.2	3.03
2-Carene	2.48	1098.4	0.02	3.94	996.9	0.04
α -Phellandrene	2.85	1127.0	0.34	4.02*	1002.7	[0.46]
Pseudolimonene	2.89	1130.3	0.12	4.02*	1002.7	[0.46]
Δ^3 -Carene	2.66	1111.7	0.68	4.11	1008.4	0.69
α -Terpinene	3.03	1141.3	1.18	4.22	1015.4	1.26
Carvomenthene	2.53	1102.2	0.02	4.29	1019.9	0.02
<i>para</i> -Cymene	4.18	1229.7	2.82	4.34	1023.1	2.80
β -Phellandrene	3.36	1167.2	0.77	4.43*	1028.4	[7.56]
Limonene	3.27	1160.1	5.00	4.43*	1028.4	[7.56]
1,8-Cineole	3.37	1168.3	1.79	4.43*	1028.4	[7.56]
(Z)- β -Ocimene	3.88*	1207.8	[1.62]	4.62	1040.8	0.01
(E)- β -Ocimene	4.05	1220.4	0.03	4.78	1050.7	0.03
γ -Terpinene	3.88*	1207.8	[1.62]	4.90	1058.2	1.61
<i>cis</i> -Sabinene hydrate	6.97*	1429.9	[0.10]	5.00	1065.0	0.10
Unknown PIMA I [m/z 79, 93 (60), 43 (40), 94 (35), 137 (33), 77 (26), 91 (20), 152 (18)]	4.85	1279.7	0.01	5.07	1069.0	0.01
<i>para</i> -Cymenene	6.40	1388.1	0.03	5.35*	1087.0	[0.83]
<i>trans</i> -Linalool oxide (fur.)	6.97*	1429.9	[0.10]	5.35*	1087.0	[0.83]

Terpinolene	4.36	1242.8	0.80	5.35*	1087.0	[0.83]
α -Pinene oxide	5.47	1321.4	0.02	5.44	1092.8	0.02
<i>trans</i> -Sabinene hydrate	8.03	1509.3	0.08	5.48	1095.5	0.07
Unknown MYFR I [m/z 95, 152 (20), 67 (17), 96 (16), 41 (12)]	5.10*	1297.9	[0.03]	5.54	1099.4	0.02
Linalool	8.13	1517.1	0.14	5.58	1101.7	0.15
Unknown ORMA I [m/z 119, 109 (94), 43 (61), 95 (56), 91 (48), 77 (32), 152 (32), 137 (31), 134 (24)]	8.54	1548.2	0.02	5.64	1105.6	0.01
endo-Fenchol	8.40	1537.4	0.03	5.71*	1110.2	[0.04]
<i>para</i> -Mentha-1,3,8-triene	6.21	1374.3	0.01	5.71*	1110.2	[0.04]
<i>cis-para</i> -Menth-2-en-1-ol	8.19*	1521.6	[0.10]	5.84	1118.7	0.08
4-Hydroxy-4-methylcyclohex-2-enone	14.13	2028.7	0.01	6.02	1130.6	0.01
<i>trans</i> -Pinocarveol	9.24*	1603.3	[0.04]	6.07*	1133.6	[0.07]
1-Terpineol	8.34	1533.5	0.02	6.07*	1133.6	[0.07]
Camphor	7.28	1452.7	0.01	6.10	1135.6	tr
<i>trans-para</i> -Menth-2-en-1-ol	9.03	1586.4	0.05	6.13	1137.4	0.06
<i>cis</i> - β -Terpineol	9.07	1589.2	0.02	6.21*	1142.6	[0.08]
Epoxyterpinolene	6.80	1417.3	0.02	6.21*	1142.6	[0.08]
<i>trans</i> -Verbenol	9.61*	1632.7	[0.04]	6.21*	1142.6	[0.08]
Unknown MEAL II [m/z 109, 124 (45), 119 (41), 43 (35), 91 (28), 95 (25)...]	6.90	1424.8	0.01	6.27	1146.2	0.01
Sabinaketone	8.74	1563.9	0.02	6.36	1152.5	0.02
Pinocarvone	7.98	1505.1	0.02	6.43	1156.7	0.01
<i>trans</i> - β -Terpineol	9.71	1640.7	0.01	6.52*	1162.5	[0.04]
Borneol	9.85*	1652.1	[0.58]	6.52*	1162.5	[0.04]
δ -Terpineol	9.53	1626.6	0.01	6.55	1165.0	0.01
Terpinen-4-ol	8.65	1557.3	4.75	6.73	1176.3	4.72
Cryptone	9.24*	1603.3	[0.04]	6.80	1180.7	0.01
<i>para</i> -Cymen-8-ol	11.60	1798.1	0.04	6.84	1183.7	0.04
Myrtenal	8.71	1561.4	0.01	6.92*	1189.1	[0.54]
α -Terpineol	9.85*	1652.1	[0.58]	6.92*	1189.1	[0.54]
<i>cis</i> -Piperitol	9.61*	1632.7	[0.04]	7.00	1194.1	0.05
Myrtenol	10.93	1741.5	0.04	7.03	1195.8	0.02

<i>cis</i> - α -Phellandrene epoxide (iPr vs Me)	11.10*	1756.0	[0.04]	7.07	1198.8	0.01
<i>trans</i> -Piperitol	10.44	1700.1	0.03	7.19	1206.4	0.02
endo-Fenchyl acetate	6.85*	1421.1	[0.04]	7.36	1218.2	0.01
Citronellol	10.79	1730.1	0.02	7.58	1233.0	0.01
Unknown CIAU II [m/z 137, 152 (28), 43 (25), 91 (24), 109 (23), 119 (19)]	11.39	1780.9	0.01	7.61	1235.0	0.01
Unknown MISC CV [m/z 43, 109 (63), 71 (50), 81 (31), 55 (29), 85 (26)...]	9.76*	1645.2	[0.10]	7.82	1249.2	0.04
Geraniol	11.70*	1807.8	[0.85]	7.96	1258.9	0.02
Linalyl acetate	8.19*	1521.6	[0.10]	7.99	1260.9	0.01
<i>trans</i> -Ascaridole glycol	14.21	2037.1	0.02	8.07	1266.8	0.02
Phellandral	10.04	1667.5	0.02	8.13	1270.4	0.01
Safrole	11.70*	1807.8	[0.85]	8.36*	1286.2	[0.92]
Bornyl acetate	8.31	1530.6	0.06	8.36*	1286.2	[0.92]
Cuminol	14.29	2044.1	0.01	8.42	1290.8	0.01
Unknown MYFR III [m/z 81, 55 (82), 41 (58), 69 (51), 67 (49)...]	11.10*	1756.0	[0.04]	8.58*†	1301.5	[0.02]
Thymol	15.14	2127.6	0.01	8.58*†	1301.5	[0.02]
Carvacrol	15.43*	2156.2	[0.03]	8.71*	1307.2	[0.11]
Unknown MYFR IV [m/z 121, 178 (20), 77 (13), 122 (10)]	8.60	1553.2	0.10	8.71*	1307.2	[0.11]
4-Vinylguaiaicol	15.11	2124.5	0.01	8.77	1311.4	0.01
Unknown MEAL I [m/z 97, 112 (92), 83 (62), 43 (44), 41 (25)... 170? (4)]	15.07	2120.4	0.02	8.83	1316.0	0.02
Unknown MYFR V [m/z 149, 178 (41), 121 (36), 91 (30), 55 (21)]	8.90	1576.4	0.01	9.07	1332.7	0.01
α -Terpinyl acetate	9.76*	1645.2	[0.10]	9.28*	1348.0	[0.10]
α -Cubebene	6.85*	1421.1	[0.04]	9.28*	1348.0	[0.10]
Eugenol	14.85	2098.5	0.18	9.36	1353.8	0.16
Citronellyl acetate	9.51	1624.5	0.04	9.40	1356.2	0.05
Neryl acetate	10.22*	1681.7	[0.04]	9.50	1363.6	0.01

α -Copaene	7.21	1448.1	0.16	9.63	1372.5	0.16
Geranyl acetate	10.62	1715.0	0.11	9.82*	1386.1	[0.12]
β -Cubebene	7.84	1494.7	0.01	9.82*	1386.1	[0.12]
β -Elemene	8.50*	1545.1	[3.23]	9.87	1390.1	0.03
Methyleugenol	13.38	1958.2	0.11	10.07	1404.0	0.13
β -Caryophyllene	8.50*	1545.1	[3.23]	10.21*	1414.4	[3.14]
<i>cis</i> - α -Bergamotene	8.24	1525.6	0.01	10.21*	1414.4	[3.14]
<i>trans</i> - α -Bergamotene	8.50*	1545.1	[3.23]	10.48	1434.8	0.05
(<i>E</i>)-Isoeugenol	16.55	2271.8	0.26	10.62	1445.4	0.26
(<i>E</i>)- β -Farnesene	9.61*	1632.7	[0.04]	10.81	1459.8	0.01
<i>trans</i> -Cadina-1(6),4-diene	9.30	1608.2	tr	10.95	1470.3	0.01
γ -Murolene	9.65	1635.9	0.02	11.00	1473.8	0.01
Germacrene D	9.85*	1652.1	[0.58]	11.03	1475.8	0.02
<i>trans</i> -Muurolo-4(15),5-diene	9.90	1656.5	0.02	11.10	1481.3	0.01
Bicyclogermacrene	10.09*	1671.9	[0.01]	11.23	1491.0	0.01
α -Murolene	10.09*	1671.9	[0.01]	11.31*	1497.0	[0.03]
Methyl (<i>E</i>)-isoeugenol	15.03	2116.3	0.01	11.31*	1497.0	[0.03]
β -Bisabolene	10.22*	1681.7	[0.04]	11.46	1508.7	0.03
(3 <i>E</i> ,6 <i>E</i>)- α -Farnesene	10.57	1711.0	0.03	11.49	1511.1	0.02
Myristicin	15.75	2189.0	4.44	11.60*	1520.0	[4.45]
<i>trans</i> -Calamenene	11.29	1772.2	0.01	11.60*	1520.0	[4.45]
δ -Cadinene	10.48	1703.7	0.06	11.62	1521.5	0.03
Unknown MYFR VIII [m/z 165, 194 (29), 111 (15), 166 (11), 43 (11)]				11.65	1523.8	0.02
<i>trans</i> -Cadina-1,4-diene	10.72	1724.2	0.01	11.72	1528.9	0.01
Elemicin	15.56	2169.5	0.15	12.08	1557.6	0.15
Spathulenol	14.45	2060.2	0.01	12.25	1570.8	0.01
Caryophyllene oxide isomer	12.75	1900.2	0.03	12.30*	1574.7	[0.10]
Caryophyllene oxide	12.83	1907.5	0.08	12.30*	1574.7	[0.10]
Methoxyeugenol	18.35	2467.0	0.18	12.62	1600.5	0.17
Myristic acid	20.26	2692.0	0.10	14.61	1768.6	0.11
<i>meta</i> -Camphorene	15.43*	2156.2	[0.03]	16.62	1951.6	0.03
<i>para</i> -Camphorene	15.87	2200.9	0.02	16.97	1985.1	0.02
Total reported		99.49%			99.67%	

*: 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