

Date : 2025-09-26

CERTIFICATE OF ANALYSIS - GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 25G23-PTH06

Customer Identification : Org Clary Sage - Greece - CC4107R

Type : Essential Oil

Source : *Salvia sclarea*

Customer : Plant Therapy

Checked and 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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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.

This report is an update from the first version issued on 2025-07-25 to correct the customer identification.

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 : 2025-07-24

PHYSICOCHEMICAL DATA

Refractive index : 1.46 ± 0.0003 (20 °C)

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

Analyst : Dany Massé B. Sc. Chimiste

Date : 2025-07-23

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
2-Methyl-3-buten-2-ol	0.01	Aliphatic alcohol
Isovaleral	0.01	Aliphatic aldehyde
2-Methylbutyral	0.01	Aliphatic aldehyde
2-Pentanone	tr	Aliphatic ketone
2-Ethylfuran	tr	Furan
Isoamyl alcohol	0.01	Aliphatic alcohol
Hexanal	0.01	Aliphatic aldehyde
(2E)-Hexenal	0.03	Aliphatic aldehyde
(3Z)-Hexenol	0.27	Aliphatic alcohol
(2E)-Hexenol	0.09	Aliphatic alcohol
Hexanol	0.07	Aliphatic alcohol
α -Pinene	0.09	Monoterpene
α -Fenchene	0.01	Monoterpene
Camphene	0.02	Monoterpene
Benzaldehyde	0.01	Simple phenolic
β -Pinene	0.09	Monoterpene
Sabinene	0.05	Monoterpene
Octen-3-ol	0.05	Aliphatic alcohol
Octan-3-one	0.01	Aliphatic ketone
<i>trans</i> -Dehydroxylinalool oxide	0.07	Monoterpenic ether
Myrcene	0.66	Monoterpene
<i>cis</i> -Dehydroxylinalool oxide	0.07	Monoterpenic ether
α -Terpinene	0.01	Monoterpene
<i>para</i> -Cymene	0.03	Monoterpene
Limonene	0.27	Monoterpene
β -Phellandrene	0.01	Monoterpene
1,8-Cineole	0.01	Monoterpenic ether
(Z)- β -Ocimene	0.25	Monoterpene
(E)- β -Ocimene	0.49	Monoterpene
γ -Terpinene	0.02	Monoterpene
<i>cis</i> -Linalool oxide (fur.)	0.02	Monoterpenic alcohol
Terpinolene	0.13	Monoterpene
<i>trans</i> -Linalool oxide (fur.)	0.03	Monoterpenic alcohol
Linalool	18.53	Monoterpenic alcohol
Hotrienol	0.05	Monoterpenic alcohol
Dehydrosabinaketone	0.01	Normoterpenic ketone
allo-Ocimene	0.01	Monoterpene
<i>trans</i> -Pinocarveol	0.01	Monoterpenic alcohol
Camphor	0.01	Monoterpenic ketone
Borneol	0.05	Monoterpenic alcohol

δ-Terpineol	0.01	Monoterpenic alcohol
Terpinen-4-ol	0.04	Monoterpenic alcohol
<i>para</i> -Cymen-8-ol	0.02	Monoterpenic alcohol
α-Terpineol	2.74	Monoterpenic alcohol
Hodiendiol (2,6-dimethylocta-3,7-diene-2,6-diol)	0.02	Monoterpenic alcohol
Unknown	0.04	Unknown
Unknown	0.02	Unknown
Linalyl formate	0.21	Monoterpenic ester
Nerol	0.56	Monoterpenic alcohol
Unknown	0.02	Unknown
Neral	0.02	Monoterpenic aldehyde
Linalyl acetate	60.44	Monoterpenic ester
Geraniol	1.48	Monoterpenic alcohol
Geranial	0.05	Monoterpenic aldehyde
Unknown	0.02	Unknown
Neryl formate	0.02	Monoterpenic ester
Bornyl acetate	0.04	Monoterpenic ester
Unknown	0.03	Unknown
Thymol	0.01	Monoterpenic alcohol
Geranyl formate	0.01	Monoterpenic ester
Carvacrol	0.09	Monoterpenic alcohol
δ-Elemene	0.02	Sesquiterpene
Hodiendiol derivative	0.05	Oxygenated monoterpene
α-Terpinyol acetate	tr	Monoterpenic ester
α-Cubebene	0.06	Sesquiterpene
Unknown	0.03	Monoterpenic ester
Unknown	0.03	Oxygenated monoterpene
Neryl acetate	0.84	Monoterpenic ester
α-Copaene	0.46	Sesquiterpene
(Z)-8-Hydroxylinalool?	0.01	Monoterpenic alcohol
1,5-diepi-β-Bourbonene	0.01	Sesquiterpene
β-Bourbonene	0.16	Sesquiterpene
Geranyl acetate	1.57	Monoterpenic ester
β-Cubebene	0.14	Sesquiterpene
β-Elemene	0.12	Sesquiterpene
γ-4-Dimethylbenzenebutyral	0.03	Simple phenolic
β-Caryophyllene	1.94	Sesquiterpene
β-Copaene	0.01	Sesquiterpene
<i>trans</i> -α-Bergamotene	0.02	Sesquiterpene
α-Humulene	0.10	Sesquiterpene
9-epi-β-Caryophyllene	0.01	Sesquiterpene
(E)-β-Farnesene	0.02	Sesquiterpene
Unknown	0.01	Sesquiterpene
γ-Murolene	0.01	Sesquiterpene

α -Amorphene	0.02	Sesquiterpene
Germacrene D	2.92	Sesquiterpene
β -Selinene	0.03	Sesquiterpene
Hodiendiol derivative IV	0.11	Oxygenated monoterpene
Bicyclogermacrene	0.45	Sesquiterpene
α -Selinene	0.09	Sesquiterpene
α -Muurolene	0.02	Sesquiterpene
Hodiendiol derivative II	0.10	Oxygenated monoterpene
(Z)- α -Bisabolene	0.02	Sesquiterpene
β -Bisabolene	0.03	Sesquiterpene
γ -Cadinene	0.13	Sesquiterpene
δ -Cadinene	0.12	Sesquiterpene
α -Elemol	0.01	Sesquiterpenic alcohol
Isocaryophyllene epoxide B	0.02	Sesquiterpenic ether
1,5-Epoxyalvial-4(14)-ene	0.04	Sesquiterpenic ether
Spathulenol	0.12	Sesquiterpenic alcohol
Caryophyllene oxide	0.25	Sesquiterpenic ether
Caryophyllene oxide isomer	0.04	Sesquiterpenic ether
Salvial-4(14)-en-1-one	0.03	Aliphatic alcohol
Guaïol	0.01	Sesquiterpenic alcohol
Unknown	0.16	Oxygenated sesquiterpene
Torilenol	0.02	Oxygenated sesquiterpene
Hinesol	0.05	Sesquiterpenic alcohol
allo-Aromadendrene epoxide?	0.08	Sesquiterpenic ether
τ -Muurolol	0.02	Sesquiterpenic alcohol
β -Eudesmol	0.06	Sesquiterpenic alcohol
α -Eudesmol	0.04	Sesquiterpenic alcohol
α -Cadinol	0.02	Sesquiterpenic alcohol
Bulnesol	0.04	Sesquiterpenic alcohol
Unknown	0.01	Oxygenated sesquiterpene
Eudesma-4(15),7-dien-1 β -ol	0.01	Sesquiterpenic alcohol
Benzyl benzoate	0.02	Phenolic ester
Phytone	0.01	Terpenic ketone
Sclareoloxide	0.01	Terpenic ether
Unknown	0.06	Unknown
Geranyl- α -terpinene	0.02	Diterpene
Unknown	0.03	Unknown
Geranyl- <i>para</i> -cymene	0.07	Diterpene
Manoyl oxide	0.02	Diterpenic ether
Manool	0.03	Diterpenic alcohol
Sclareol	0.35	Diterpenic alcohol
Consolidated total	98.74	

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

Note: no correction factor was applied

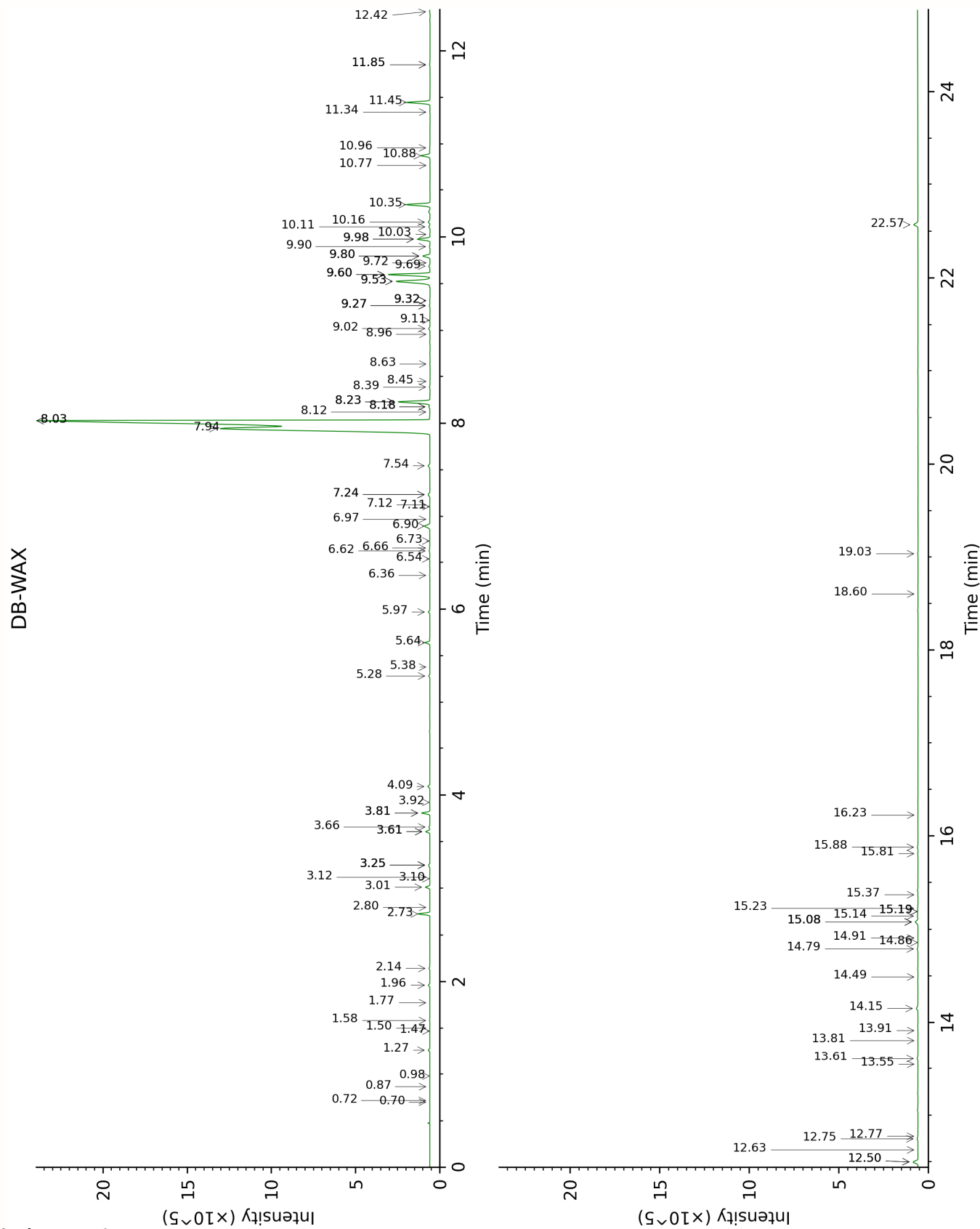
About "consolidated" data: The table above presents the breakdown of the sample volatile constituents after applying an algorithm to collapse data acquired from the multi-columns system of PhytoChemia into a single set of consolidated contents. In case of discrepancies

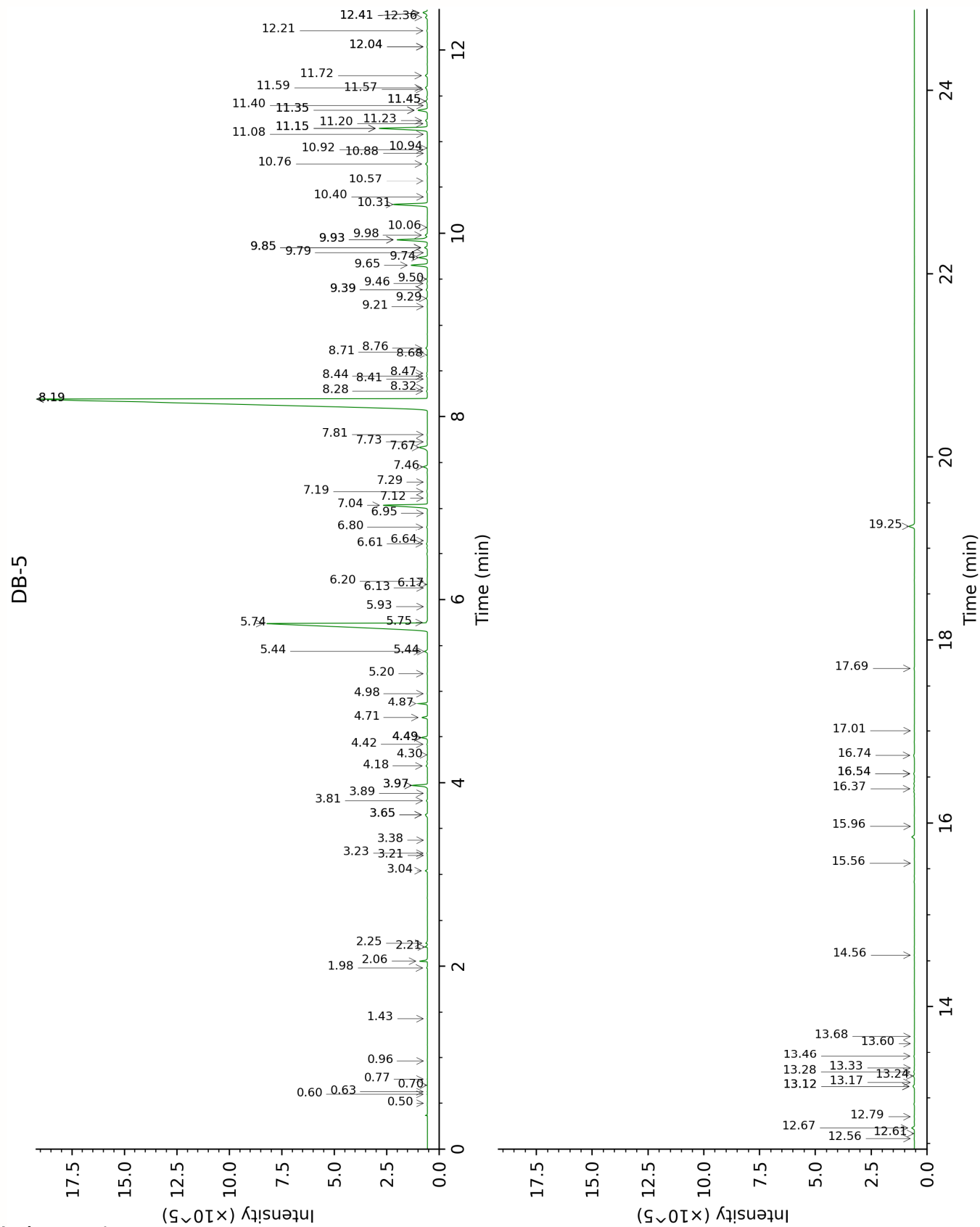
between columns, the algorithm is set to prioritize data from the most standard DB-5 column, and smallest values so as to avoid overestimating individual content. This process is semi-automatic. Advanced users are invited to consult the "Full analysis data" table after the chromatograms in this report 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.





FULL ANALYSIS DATA

2-Methyl-3-buten-2-ol	Column DB-WAX			Column DB-5		
	1.47	1013.8	tr	0.50	607.4	0.01
Isovaleral	0.72	889.7	0.01	0.60	642.8	0.01
2-Methylbutyral	0.70	882.3	tr	0.63	652.8	0.01
2-Pentanone	0.98	939.8	0.01	0.70	678.3	tr
2-Ethylfuran	0.87	919.5	tr	0.77	702.4	tr
Isoamyl alcohol	3.25*	1176.3	[0.10]	0.96	732.8	0.01
Hexanal	1.77	1045.4	0.01	1.43	800.2	0.01
(2E)-Hexenal	3.25*	1176.3	[0.10]	1.98	848.5	0.03
(3Z)-Hexenol	5.64	1353.9	0.28	2.06	854.7	0.27
(2E)-Hexenol	5.97	1377.4	0.09	2.21	867.7	0.09
Hexanol	5.28	1328.3	0.07	2.25	871.1	0.07
α-Pinene	1.27	990.2	0.09	3.04	930.7	0.09
α-Fenchene	1.50	1017.0	0.01	3.21	941.8	0.01
Camphene	1.58	1025.5	0.02	3.23	943.4	0.02
Benzaldehyde	7.11	1460.9	0.01	3.38	952.9	0.01
β-Pinene	1.96	1065.1	0.09	3.65*	971.4	[0.14]
Sabinene	2.14	1083.9	0.05	3.65*	971.4	[0.14]
Octen-3-ol	6.54	1418.8	0.03	3.80	981.7	0.05
Octan-3-one	3.81*	1219.7	[0.48]	3.89	987.1	0.01
trans-Dehydroxylinalool oxide	3.25*	1176.3	[0.10]	3.97*	992.9	[0.74]
Myrcene	2.73	1133.9	0.66	3.97*	992.9	[0.74]
cis-Dehydroxylinalool oxide	3.66	1208.5	0.06	4.18	1006.9	0.07
α-Terpinene	2.80	1139.6	0.01	4.30	1014.6	0.01
para-Cymene	3.92	1228.3	0.03	4.42	1021.9	0.03
Limonene	3.01	1157.2	0.27	4.49*	1026.5	[0.28]
β-Phellandrene	3.10	1164.5	0.01	4.49*	1026.5	[0.28]
1,8-Cineole	3.12	1165.8	0.01	4.49*	1026.5	[0.28]
(Z)-β-Ocimene	3.61*	1204.9	[0.25]	4.71	1040.3	0.25
(E)-β-Ocimene	3.81*	1219.7	[0.48]	4.87	1050.2	0.49
γ-Terpinene	3.61*	1204.9	[0.25]	4.98	1057.3	0.02
cis-Linalool oxide (fur.)	6.36	1405.8	0.02	5.20	1071.1	0.02
Terpinolene	4.09	1241.0	0.13	5.44*	1086.5	[0.15]
trans-Linalool oxide (fur.)	6.66	1427.5	0.03	5.44*	1086.5	[0.15]
Linalool	7.94*†	1523.9	[29.02]	5.74	1105.9	18.53
Hotrienol	8.64	1577.3	0.01	5.75	1106.6	0.05
Dehydrosabinaketone	8.45	1562.9	0.01	5.93	1117.8	0.01
allo-Ocimene	5.38	1335.2	0.01	6.13	1131.0	0.01
trans-Pinocarveol	8.96	1602.8	0.02	6.17	1133.5	0.01
Camphor	6.97	1450.8	0.01	6.20	1135.7	0.01
Borneol	9.60*	1654.3	[2.77]	6.61	1162.2	0.05
δ-Terpineol	9.27*	1627.4	[0.06]	6.64	1164.5	0.01

Terpinen-4-ol	8.39	1558.2	0.04	6.80	1174.4	0.04
<i>para</i> -Cymen-8-ol	11.34	1800.7	0.02	6.95	1184.3	0.02
α -Terpineol	9.60*	1654.3	[2.77]	7.04	1190.0	2.74
Hodiendiol (2,6-dimethylocta-3,7-diene-2,6-diol)	12.63	1915.6	0.02	7.12	1195.1	0.02
Unknown SASC VI [m/z 43, 71 (80), 67 (55), 59 (51), 68 (44), 41 (43)...]	10.77	1751.9	0.01	7.19	1199.7	0.04
Unknown SASC VII [m/z 43, 71 (66), 59 (52), 41 (47), 68 (46)...]	7.24*	1470.3	[0.15]	7.29	1206.5	0.02
Linalyl formate	8.23*	1546.0	[2.18]	7.46	1217.7	0.21
Nerol	10.88	1760.7	0.59	7.67	1232.1	0.56
Unknown SASC IV [m/z 43, 93 (49), 41 (22), 80 (22), 69 (17), 121 (14)...]				7.73	1236.3	0.02
Neral	9.27*	1627.4	[0.06]	7.81	1241.7	0.02
Linalyl acetate	8.03*†	1530.4	[50.02]	8.19*	1268.1	[61.92]
Geraniol	11.45	1809.9	1.48	8.19*	1268.1	[61.92]
Geranial	9.90	1678.5	0.05	8.28	1274.0	0.05
Unknown MISC V [m/z 121, 43 (75), 95 (57), 41 (34), 93 (33), 69 (28)...]				8.32	1276.5	0.02
Neryl formate	9.27*	1627.4	[0.06]	8.41	1283.0	0.02
Bornyl acetate	8.03*†	1530.4	[50.02]	8.44	1285.2	0.04
Unknown MISC VI [m/z 43, 121 (74), 93 (42), 95 (38), 107 (29), 41 (29), 136 (28)...]				8.48	1287.4	0.03
Thymol	14.91	2134.2	0.02	8.68	1301.4	0.01
Geranyl formate	9.72	1664.4	0.01	8.71	1303.6	0.01
Carvacrol	15.08*	2151.5	[0.24]	8.76	1306.6	0.09
δ -Elemene	6.73	1433.1	0.03	9.21	1335.2	0.02
Hodiendiol derivative	12.75	1926.5	0.07	9.30	1341.5	0.05
α -Terpinyl acetate	9.53*	1648.5	[3.04]	9.39*	1348.2	[0.06]
α -Cubebene	6.62	1425.2	0.06	9.39*	1348.2	[0.06]
Unknown MISC VII [m/z 43, 121 (52), 93 (48), 79 (33), 41 (30), 136 (26), 81 (25)...]				9.46	1353.0	0.03
Unknown SASC III [m/z 43, 79 (46), 71 (30), 94 (25), 41 (23), 81 (21)... 197 (0)]	10.96	1767.8	0.03	9.50	1356.4	0.03

Neryl acetate	9.98*	1684.9	[0.85]	9.65	1367.1	0.84
α -Copaene	6.90	1445.4	0.47	9.74	1373.0	0.46
(Z)-8-Hydroxylinalool?	13.55	2001.2	0.01	9.79	1376.8	0.01
1,5-diepi- β -Bourbonene	7.12	1462.1	0.01	9.84*	1380.7	[0.17]
β -Bourbonene	7.24*	1470.3	[0.15]	9.84*	1380.7	[0.17]
Geranyl acetate	10.34	1715.7	1.57	9.93*	1386.8	[1.71]
β -Cubebene	7.54	1493.2	0.14	9.93*	1386.8	[1.71]
β -Elemene	8.18*	1541.9	[0.07]	9.98	1390.3	0.12
γ -4-Dimethylbenzenebutyral				10.06	1396.3	0.03
β -Caryophyllene	8.23*	1546.0	[2.18]	10.31	1414.5	1.94
β -Copaene	8.12	1537.5	0.01	10.40	1420.7	0.01
<i>trans</i> - α -Bergamotene	8.18*	1541.9	[0.07]	10.57	1433.9	0.02
α -Humulene	9.02	1607.8	0.11	10.76	1448.0	0.10
9-epi- β -Caryophyllene	9.11	1614.9	0.03	10.88	1456.7	0.01
(E)- β -Farnesene	9.32*	1631.8	[0.04]	10.92	1459.6	0.02
Unknown MISC XLIX [m/z 161, 105 (56), 91 (50), 93 (36), 119 (33), 79 (31)...204 (5)]				10.94	1461.1	0.01
γ -Muurolene	9.32*	1631.8	[0.04]	11.08	1472.2	0.01
α -Amorphene	9.32*	1631.8	[0.04]	11.15*	1477.0	[2.94]
Germacrene D	9.53*	1648.5	[3.04]	11.15*	1477.0	[2.94]
β -Selinene	9.60*	1654.3	[2.77]	11.20	1480.9	0.03
Hodiendiol derivative IV				11.23	1483.4	0.11
Bicyclogermacrene	9.80*	1670.3	[0.52]	11.35*	1491.8	[0.53]
α -Selinene	9.69	1661.6	0.09	11.35*	1491.8	[0.53]
α -Muurolene	9.80*	1670.3	[0.52]	11.40	1495.7	0.02
Hodiendiol derivative II	12.50*	1903.4	[0.39]	11.44*	1499.3	[0.11]
(Z)- α -Bisabolene	10.03	1689.0	0.02	11.44*	1499.3	[0.11]
β -Bisabolene	9.98*	1684.9	[0.85]	11.57	1509.1	0.03
γ -Cadinene	10.11	1695.6	0.10	11.59	1510.4	0.13
δ -Cadinene	10.16	1699.9	0.14	11.72	1520.9	0.12
α -Elemol	13.81	2026.3	0.01	12.04*	1545.7	[0.03]
Isocaryophyllene epoxide B	11.85*	1845.7	[0.04]	12.04*	1545.7	[0.03]
1,5-Epoxysalvial-4(14)- ene	11.85*	1845.7	[0.04]	12.21	1559.5	0.04
Spathulenol	14.15	2059.5	0.15	12.36	1570.9	0.12
Caryophyllene oxide	12.50*	1903.4	[0.39]	12.41*	1575.1	[0.29]
Caryophyllene oxide isomer	12.42	1896.7	0.04	12.41*	1575.1	[0.29]
Salvial-4(14)-en-1-one	12.77	1929.1	0.02	12.56	1586.7	0.03
Guaiol	13.92	2036.6	0.01	12.61	1591.1	0.01
Unknown MISC CLIX				12.67	1595.9	0.16

[m/z 91, 119 (91), 79 (86), 93 (85), 41 (74), 107 (68), 105 (67), 134 (65)... 220 (1)]						
Torilenol	15.19*	2162.8	[0.04]	12.80	1605.5	0.02
Hinesol	14.79	2122.4	0.05	13.12*	1632.9	[0.09]
allo-Aromadendrene epoxide?	13.61	2007.0	0.08	13.12*	1632.9	[0.09]
τ-Muurolol	14.86	2129.4	0.01	13.17	1636.5	0.02
β-Eudesmol	15.14	2157.9	0.05	13.24	1642.4	0.06
α-Eudesmol	15.08*	2151.5	[0.24]	13.28	1646.1	0.04
α-Cadinol	15.23	2166.3	0.03	13.33	1649.7	0.02
Bulnesol	15.08*	2151.5	[0.24]	13.46	1660.4	0.04
Unknown CAIN XVI [m/z 135, 107 (99), 59 (90), 93 (81), 161 (68), 105 (65)...]	15.37	2180.9	0.01	13.60	1672.4	0.01
Eudesma-4(15),7-dien-1β-ol	15.81	2226.5	0.01	13.68	1678.8	0.01
Benzyl benzoate	18.60	2533.7	0.01	14.56	1754.5	0.02
Phytone	14.49	2092.2	0.01	15.56	1843.2	0.01
Sclareoloxide				15.96	1879.8	0.01
Unknown SASC XI [m/z 69, 81 (84), 109 (80), 43 (64), 95 (59)...]				16.37	1917.6	0.06
Geranyl-α-terpinene	15.19*	2162.8	[0.04]	16.54*	1933.2	[0.05]
Unknown UNKN CXC [m/z 109, 132 (88), 157 (76), 119 (66), 91 (57), 105 (55)...]				16.54*	1933.2	[0.05]
Geranyl-para-cymene	15.88	2233.7	0.05	16.74	1952.3	0.07
Manoyl oxide	16.22	2269.6	0.01	17.01	1977.8	0.02
Manool	19.03	2584.1	0.03	17.69	2044.8	0.03
Sclareol	22.57	3037.5	0.35	19.25	2202.9	0.35
Total reported		98.38%			98.69%	

*: 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