

Date : 2025-07-10

CERTIFICATE OF ANALYSIS - GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 25F06-PTH02

Customer Identification : Cinnamon Bark - Sri Lanka - CC0113R

Type : Essential Oil

Source : *Cinnamomum zeylanicum* [syn. *Cinnamomum verum*]

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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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 2025-06-13 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 : Anne Retailaud

Date : 2025-06-12

PHYSICOCHEMICAL DATA

Refractive index : 1.586 ± 0.0003 (20 °C)

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

Analyst : Cindy Caron B. Sc.

Date : 2025-06-09

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
Ethylbenzene	0.01	Simple phenolic
Styrene	0.03	Simple phenolic
Tricyclene	0.04	Monoterpene
α -Thujene	0.10	Monoterpene
α -Pinene	3.00	Monoterpene
α -Fenchene	0.01	Monoterpene
Camphene	0.33	Monoterpene
Benzaldehyde	0.09	Simple phenolic
β -Pinene	0.36	Monoterpene
Sabinene	0.01	Monoterpene
Myrcene	0.05	Monoterpene
α -Phellandrene	1.29	Monoterpene
Octanal	0.02	Aliphatic aldehyde
Δ^3 -Carene	0.07	Monoterpene
α -Terpinene	0.59	Monoterpene
<i>meta</i> -Cymene	0.02	Monoterpene
<i>para</i> -Cymene	0.82	Monoterpene
Limonene	1.87	Monoterpene
1,8-Cineole	[1.97]	Monoterpenic ether
β -Phellandrene	[1.97]	Monoterpene
(Z)- β -Ocimene	0.01	Monoterpene
(E)- β -Ocimene	0.02	Monoterpene
γ -Terpinene	0.02	Monoterpene
<i>cis</i> -Linalool oxide (fur.)	0.02	Monoterpenic alcohol
Terpinolene	0.04	Monoterpene
<i>trans</i> -Linalool oxide (fur.)	0.02	Monoterpenic alcohol
<i>para</i> -Cymenene	0.02	Monoterpene
Linalool	3.29	Monoterpenic alcohol
Nonanal	0.01	Aliphatic aldehyde
(3E)-2,7-Dimethyl-3,6-octadien-2-ol	0.01	Monoterpenic alcohol
Phenylethyl alcohol	0.04	Simple phenolic
<i>cis-para</i> -Menth-2-en-1-ol	0.01	Monoterpenic alcohol
<i>trans</i> -Pinocarveol	0.01	Monoterpenic alcohol
Camphor	0.02	Monoterpenic ketone
Camphene hydrate	0.01	Monoterpenic alcohol
Hydrocinnamal	0.19	Phenylpropanoid
Benzyl acetate	0.01	Phenolic ester
Borneol	0.03	Monoterpenic alcohol
3-Methylbenzofuran?	0.01	Phenylpropanoid

Terpinen-4-ol	0.08	Monoterpenic alcohol
Cryptone	0.01	Normoterpenic ketone
<i>para</i> -Cymen-8-ol	0.02	Monoterpenic alcohol
α -Terpineol	0.12	Monoterpenic alcohol
<i>cis</i> - α -Phellandrene epoxide (iPr vs Me)	0.03	Monoterpenic ether
<i>trans</i> -Piperitol	0.01	Monoterpenic alcohol
(<i>Z</i>)-Cinnamal	0.32	Phenylpropanoid
Hydrocinnamyl alcohol	0.10	Phenylpropanoid
<i>ortho</i> -Anisaldehyde	0.05	Simple phenolic
Phenylethyl acetate	0.01	Phenolic ester
(<i>E</i>)-Cinnamal	71.03	Phenylpropanoid
Safrole	0.25	Phenylpropanoid
(<i>E</i>)-Cinnamyl alcohol	0.02	Phenylpropanoid
Carvacrol	0.03	Monoterpenic alcohol
Eugenol	4.32	Phenylpropanoid
Hydrocinnamyl acetate	0.04	Phenylpropanoid ester
α -Copaene	0.15	Sesquiterpene
β -Elemene	0.02	Sesquiterpene
Methyleugenol	0.02	Phenylpropanoid
(<i>Z</i>)-Isoeugenol	0.01	Phenylpropanoid
β -Caryophyllene	2.53	Sesquiterpene
(<i>E</i>)-Cinnamic acid	0.16	Phenylpropanoid
(<i>E</i>)-Cinnamyl acetate	4.13	Phenylpropanoid ester
(<i>E</i>)-Isoeugenol	0.01	Phenylpropanoid
α -Humulene	0.19	Sesquiterpene
γ -Murolene	0.03	Sesquiterpene
Germacrene D	tr	Sesquiterpene
α -Curcumene	0.04	Sesquiterpene
Viridiflorene	0.03	Sesquiterpene
α -Murolene	0.03	Sesquiterpene
2,3-Epoxy-cinnamyl acetate I?	0.01	Phenylpropanoid ester
γ -Cadinene	0.02	Sesquiterpene
Cubebol	0.03	Sesquiterpenic alcohol
<i>trans</i> -Calamenene	0.03	Sesquiterpene
δ -Cadinene	0.09	Sesquiterpene
Eugenyl acetate	0.14	Phenylpropanoid ester
<i>trans</i> -Cadina-1,4-diene	0.02	Sesquiterpene
(<i>E</i>)- <i>ortho</i> -Methoxycinnamal	0.03	Phenylpropanoid
α -Calacorene	0.02	Sesquiterpene
Isocaryophyllene epoxide B	0.03	Sesquiterpenic ether
β -Calacorene	0.02	Sesquiterpene
Caryophyllenyl alcohol	0.01	Sesquiterpenic alcohol
Spathulenol	0.02	Sesquiterpenic alcohol
Caryophyllene oxide isomer	0.03	Sesquiterpenic ether
Caryophyllene oxide	0.21	Sesquiterpenic ether

Unknown	0.01	Oxygenated sesquiterpene
Humulene epoxide II	0.04	Sesquiterpenic ether
Tetradecanal	0.04	Aliphatic aldehyde
10-epi-Cubenol?	0.03	Sesquiterpenic alcohol
Caryophylladienol I	0.02	Sesquiterpenic alcohol
Caryophylladienol II	0.02	Sesquiterpenic alcohol
(3Z)-Caryophylla-3,8(13)-dien-5 β -ol	0.03	Sesquiterpenic alcohol
Benzyl benzoate	0.24	Phenolic ester
Unknown	0.04	Unknown
Unknown	0.03	Unknown
Unknown	0.02	Lignan
Consolidated total	99.53	

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

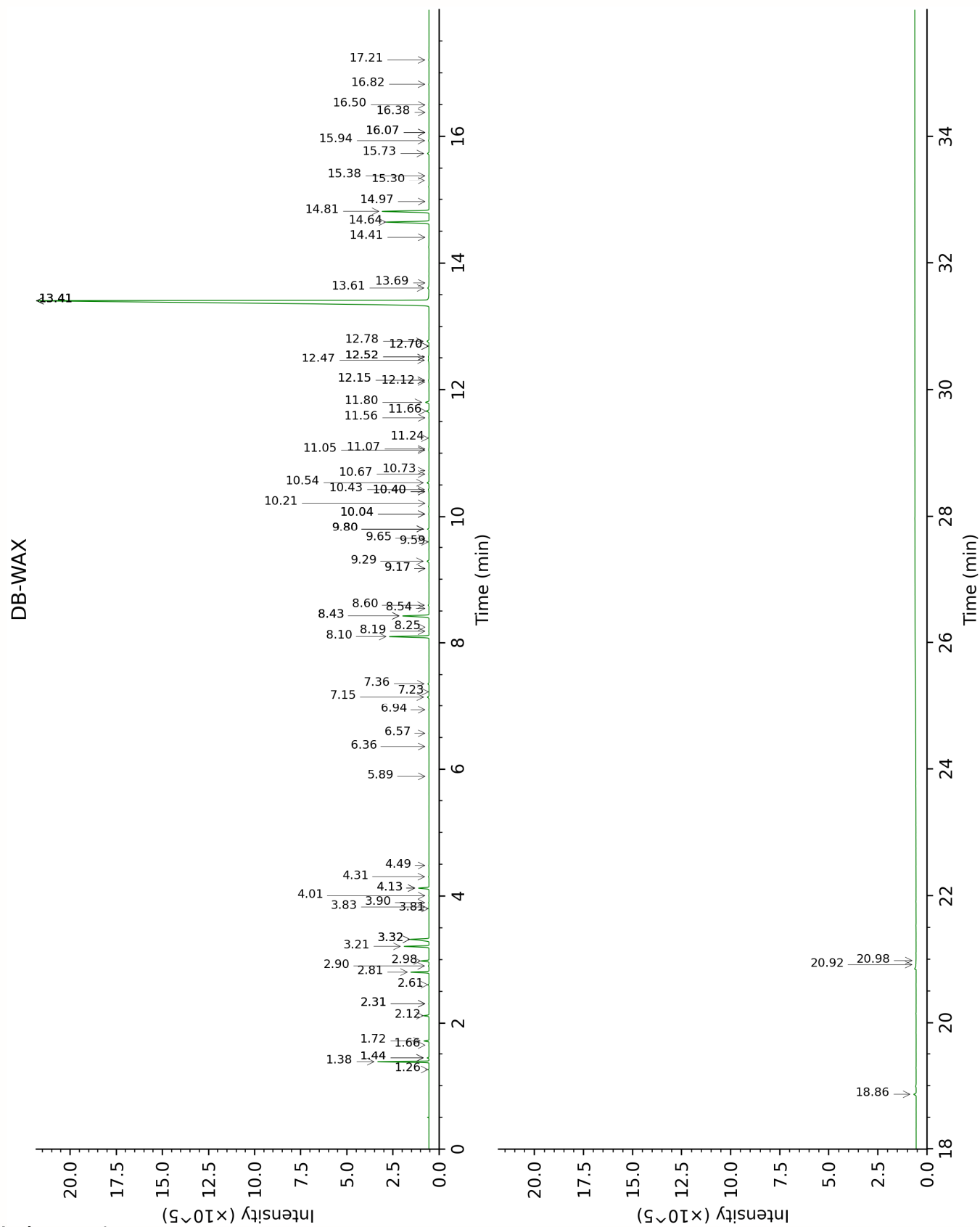
Note: no correction factor was applied

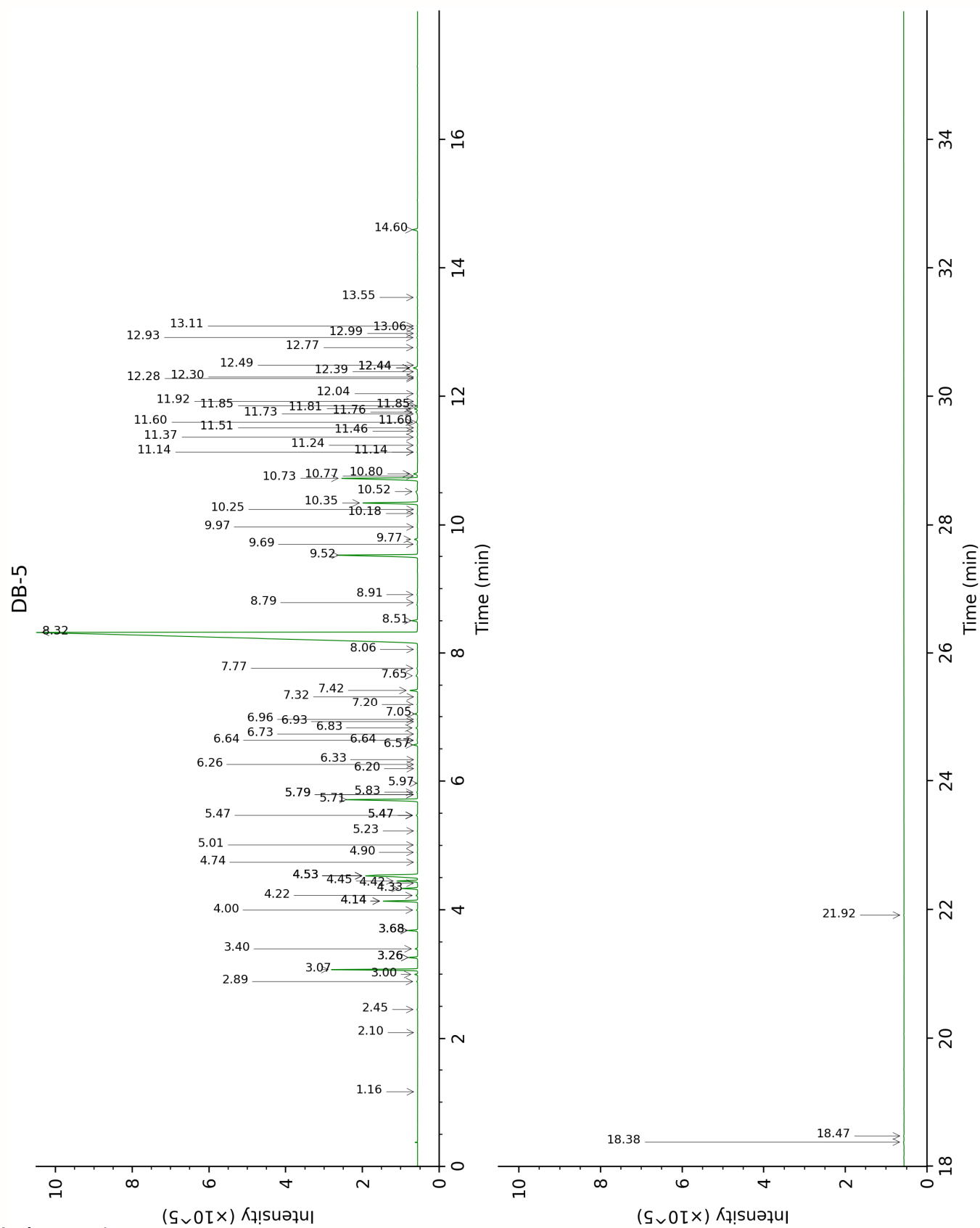
About "consolidated" data: The table above presents the breakdown of the sample volatile constituents after applying an algorithm to collapse data acquired from the multi-columns system of PhytoChemia into a single set of consolidated contents. In case of discrepancies between columns, the algorithm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

Toluene	Column DB-WAX			Column DB-5		
	1.44*	998.4	[0.10]	1.16	758.9	tr
Ethylbenzene	2.31*	1083.9	[0.02]	2.10	856.5	0.01
Styrene	3.90	1210.4	0.03	2.45	886.8	0.03
Tricyclene	1.26	970.6	0.03	2.89	919.6	0.04
α -Thujene	1.44*	998.4	[0.10]	3.00	927.0	0.10
α -Pinene	1.38	990.6	2.99	3.07	932.0	3.00
α -Fenchene	1.66	1019.3	0.01	3.26*	944.5	[0.34]
Camphene	1.72	1025.9	0.33	3.26*	944.5	[0.34]
Benzaldehyde	7.36	1460.9	0.09	3.40	953.6	0.09
β -Pinene	2.12	1065.2	0.36	3.68*	972.7	[0.38]
Sabinene	2.31*	1083.9	[0.02]	3.68*	972.7	[0.38]
Myrcene	2.90	1133.0	0.05	4.00	993.8	0.05
α -Phellandrene	2.81	1125.4	1.29	4.14*	1003.2	[1.30]
Octanal	4.48	1253.3	0.02	4.14*	1003.2	[1.30]
Δ^3 -Carene	2.61	1109.8	0.06	4.22	1008.7	0.07
α -Terpinene	2.98	1139.2	0.59	4.34	1015.7	0.59
<i>meta</i> -Cymene	4.13*	1227.2	[0.83]	4.42	1020.8	0.02
<i>para</i> -Cymene	4.13*	1227.2	[0.83]	4.45	1023.0	0.82
Limonene	3.21	1157.2	1.87	4.53*	1028.0	[3.84]
1,8-Cineole	3.32*	1165.9	[1.97]	4.53*	1028.0	[3.84]
β -Phellandrene	3.32*	1165.9	[1.97]	4.53*	1028.0	[3.84]
(<i>Z</i>)- β -Ocimene	3.81	1203.5	0.02	4.74	1041.3	0.01
(<i>E</i>)- β -Ocimene	4.01	1218.5	0.02	4.90	1051.0	0.02
γ -Terpinene	3.83	1205.4	0.02	5.01	1058.2	0.02
<i>cis</i> -Linalool oxide (fur.)	6.57	1402.5	0.02	5.23	1072.0	0.02
Terpinolene	4.31	1240.4	0.04	5.47*	1087.3	[0.07]
<i>trans</i> -Linalool oxide (fur.)	6.94	1430.0	0.02	5.47*	1087.3	[0.07]
<i>para</i> -Cymenene	6.36	1387.4	0.02	5.47*	1087.3	[0.07]
Linalool	8.10	1516.9	3.26	5.72	1102.7	3.29
Nonanal	5.89	1353.8	0.01	5.79*	1107.7	[0.02]
(3 <i>E</i>)-2,7-Dimethyl-3,6-octadien-2-ol	8.25	1528.2	0.01	5.79*	1107.7	[0.02]
Phenylethyl alcohol	12.15*	1849.5	[0.05]	5.83	1110.1	0.04
<i>cis-para</i> -Menth-2-en-1-ol	8.19	1523.4	0.02	5.97	1119.0	0.01
<i>trans</i> -Pinocarveol	9.17*	1599.7	[0.01]	6.20	1133.6	0.01
Camphor	7.23	1451.7	0.01	6.26	1137.7	0.02
Camphene hydrate	8.54	1551.0	0.01	6.34	1142.5	0.01
Hydrocinnamal	10.54	1710.6	0.18	6.56	1157.3	0.19
Benzyl acetate	10.04*	1670.0	[0.04]	6.64*	1161.8	[0.04]

Borneol	9.80*	1650.7	[0.14]	6.64*	1161.8	[0.04]
3-Methylbenzofuran?	10.21	1683.7	0.01	6.73	1168.1	0.01
Terpinen-4-ol	8.60	1555.0	0.07	6.83	1174.1	0.08
Cryptone	9.17*	1599.7	[0.01]	6.93	1180.4	0.01
<i>para</i> -Cymen-8-ol	11.56	1797.2	0.02	6.96	1182.7	0.02
α -Terpineol	9.80*	1650.7	[0.14]	7.05	1188.1	0.12
<i>cis</i> - α -Phellandrene epoxide (iPr vs Me)	11.05	1753.9	0.03	7.20	1198.2	0.03
<i>trans</i> -Piperitol	10.40*	1698.8	[0.03]	7.32	1205.9	0.01
(<i>Z</i>)-Cinnamal	11.80	1818.8	0.33	7.42	1212.7	0.32
Hydrocinnamyl alcohol	13.61	1982.3	0.12	7.65	1227.9	0.10
<i>ortho</i> -Anisaldehyde	12.52*	1882.0	[0.11]	7.77	1235.7	0.05
Phenylethyl acetate	11.07	1755.6	0.03	8.06	1255.5	0.01
(<i>E</i>)-Cinnamal	13.41*	1963.8	[70.85]	8.32	1273.2	71.03
Safrole	11.66	1806.5	0.26	8.51	1285.5	0.25
(<i>E</i>)-Cinnamyl alcohol	15.94	2211.2	0.05	8.79	1304.3	0.02
Carvacrol	15.38	2154.8	0.02	8.91	1313.0	0.03
Eugenol	14.81	2097.9	4.34	9.52	1356.4	4.32
Hydrocinnamyl acetate	12.47	1877.3	0.12	9.69	1368.5	0.04
α -Copaene	7.15	1445.5	0.14	9.77	1373.9	0.15
β -Elemene	8.43*	1542.0	[2.53]	9.97	1388.2	0.02
Methyleugenol	13.41*	1963.8	[70.85]	10.18	1403.0	0.02
(<i>Z</i>)-Isoeugenol	15.30	2146.8	0.01	10.25	1407.7	0.01
β -Caryophyllene	8.43*	1542.0	[2.53]	10.35	1415.2	2.53
(<i>E</i>)-Cinnamic acid				10.52	1428.3	0.16
(<i>E</i>)-Cinnamyl acetate	14.64	2081.4	4.14	10.73	1443.7	4.13
(<i>E</i>)-Isoeugenol	16.50	2269.8	0.02	10.77	1446.5	0.01
α -Humulene	9.29	1609.1	0.19	10.80	1448.9	0.19
γ -Murolene	9.59	1633.7	0.03	11.14*	1474.2	[0.03]
Germacrene D	9.80*	1650.7	[0.14]	11.14*	1474.2	[0.03]
α -Curcumene	10.67	1722.1	0.03	11.24	1482.1	0.04
Viridiflorene	9.65	1638.4	0.02	11.37	1491.5	0.03
α -Murolene	10.04*	1670.0	[0.04]	11.46	1498.3	0.03
2,3-Epoxy-cinnamyl acetate I?	16.38	2257.5	0.01	11.51	1502.3	0.01
γ -Cadinene	10.40*	1698.8	[0.03]	11.60*	1509.0	[0.10]
Cubebol	12.52*	1882.0	[0.11]	11.60*	1509.0	[0.10]
<i>trans</i> -Calamenene	11.24	1770.0	0.03	11.73	1519.2	0.03

δ-Cadinene	10.43	1701.5	0.07	11.76	1521.4	0.09
Eugenyl acetate	15.73	2190.1	0.14	11.81	1525.4	0.14
<i>trans</i> -Cadina-1,4-diene	10.73	1726.7	0.02	11.85*	1528.9	[0.01]
(<i>E</i>)- <i>ortho</i> -Methoxycinnamal	17.21	2345.6	0.03	11.85*	1528.9	[0.01]
α-Calacorene	12.12	1847.1	0.03	11.92	1534.4	0.02
Isocaryophyllene epoxide B	12.15*	1849.5	[0.05]	12.04	1543.8	0.03
β-Calacorene	12.70*	1898.2	[0.02]	12.28	1562.5	0.02
Caryophyllenyl alcohol	13.69	1989.6	0.01	12.30	1564.2	0.01
Spathulenol	14.41	2058.4	0.03	12.39	1570.8	0.02
Caryophyllene oxide isomer	12.70*	1898.2	[0.02]	12.44*	1575.4	[0.24]
Caryophyllene oxide	12.78	1905.2	0.21	12.44*	1575.4	[0.24]
Unknown CYSC XX [m/z 161, 159 (69), 91 (41), 187 (38), 105 (37), 146 (35), 131 (34)...]	14.97	2113.3	0.01	12.49	1578.7	0.01
Humulene epoxide II	13.41*	1963.8	[70.85]	12.77	1601.1	0.04
Tetradecanal	12.52*	1882.0	[0.11]	12.93	1613.8	0.04
10- <i>epi</i> -Cubenol?	13.41*	1963.8	[70.85]	12.99	1619.1	0.03
Caryophylladienol I	16.06*	2224.6	[0.02]	13.06	1625.2	0.02
Caryophylladienol II	16.06*	2224.6	[0.02]	13.11	1628.7	0.02
(3 <i>Z</i>)-Caryophylla-3,8(13)-dien-5β-ol	16.82	2304.3	0.04	13.55	1665.2	0.03
Benzyl benzoate	18.86	2531.4	0.24	14.60	1754.4	0.24
Unknown CIZE II [m/z 69, 91 (57), 41 (49), 181 (32), 169 (25), 167 (22)...]	20.92	2779.5	0.03	18.38	2110.0	0.04
Unknown CIZE III [m/z 69, 91 (56), 41 (49), 169 (34), 239 (28), 93 (23)...]	20.98	2787.4	0.02	18.47	2119.8	0.03
Unknown OCSA V [m/z 326, 148 (67), 147 (41), 117 (30), 91 (22)...]				21.92	2499.2	0.02
Total reported		99.02%			99.52%	

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*: 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