

Date : 2026-07-22

CERTIFICATE OF ANALYSIS - GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 26D29-PTH03

Customer Identification : Palmarosa - Nepal - P10117

Type : Essential Oil

Source : *Cymbopogon martini*

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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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 2026-05-06 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 : Jean-Christophe Fortin, M. Sc.

Date : 2026-05-06

PHYSICOCHEMICAL DATA

Refractive index : 1.4744 ± 0.0003 (20 °C)

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

Analyst : Cindy Caron B. Sc.

Date : 2026-04-29

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
Ethanol	0.12	Aliphatic alcohol
Isovaleral	tr	Aliphatic aldehyde
Isoamyl alcohol	0.02	Aliphatic alcohol
(3Z)-Hexenol	tr	Aliphatic alcohol
Isoamyl acetate	tr	Aliphatic ester
2-Heptanone	tr	Aliphatic ketone
α -Pinene	tr	Monoterpene
6-Methyl-5-hepten-2-one	0.04	Aliphatic ketone
Myrcene	0.45	Monoterpene
<i>trans</i> -Dehydroxylinalool oxide	0.01	Monoterpenic ether
α -Phellandrene	0.03	Monoterpene
<i>cis</i> -Dehydroxylinalool oxide	0.01	Monoterpenic ether
<i>para</i> -Cymene	0.01	Monoterpene
Limonene	0.75	Monoterpene
(Z)- β -Ocimene	0.41	Monoterpene
(E)- β -Ocimene	1.10	Monoterpene
γ -Terpinene	0.01	Monoterpene
<i>cis</i> -Linalool oxide (fur.)	0.01	Monoterpenic alcohol
Octanol	0.01	Aliphatic alcohol
<i>trans</i> -Linalool oxide (fur.)	0.01	Monoterpenic alcohol
Terpinolene	0.01	Monoterpene
Linalool	3.22	Monoterpenic alcohol
Nonanal	0.01	Aliphatic aldehyde
Unknown	0.03	Unknown
Camphor	0.01	Monoterpenic ketone
Citronellal	0.01	Monoterpenic aldehyde
Terpinen-4-ol	0.01	Monoterpenic alcohol
Menthol	0.01	Monoterpenic alcohol
Isogeranial	0.01	Monoterpenic aldehyde
α -Terpineol	0.03	Monoterpenic alcohol
Methylchavicol	0.02	Phenylpropanoid
Nerol	0.66	Monoterpenic alcohol
Citronellol	0.03	Monoterpenic alcohol
Neral	0.25	Monoterpenic aldehyde
Piperitone	0.06	Monoterpenic ketone
Isoamyl hexanoate	0.01	Aliphatic ester
Geraniol	79.61	Monoterpenic alcohol
Geranial	0.45	Monoterpenic aldehyde
Geranyl formate	0.09	Monoterpenic ester
2,3-Epoxygeraniol?	0.03	Oxygenated monoterpene

Geranic acid	0.02	Aliphatic acid
Neryl acetate	0.06	Monoterpenic ester
Geranyl acetate	8.75	Monoterpenic ester
β -Elemene	0.03	Sesquiterpene
β -Caryophyllene	1.85	Sesquiterpene
α -Humulene	0.05	Sesquiterpene
Germacrene D	0.01	Sesquiterpene
Unknown	0.03	Sesquiterpene
β -Selinene	0.01	Sesquiterpene
Valencene	0.02	Sesquiterpene
α -Murolene	0.01	Sesquiterpene
γ -Cadinene	0.02	Sesquiterpene
α -Elemol	tr	Sesquiterpenic alcohol
Geranyl butyrate	0.08	Monoterpenic ester
(E)-Nerolidol	0.04	Sesquiterpenic alcohol
Caryophyllene oxide isomer	0.01	Sesquiterpenic ether
Caryophyllene oxide	0.09	Sesquiterpenic ether
Caryophylladienol II	0.01	Sesquiterpenic alcohol
(2E,6E)-Farnesol	0.38	Sesquiterpenic alcohol
Geranyl caproate	0.34	Monoterpenic ester
(2E,6E)-Farnesyl acetate	0.05	Sesquiterpenic ester
Phytone	0.01	Terpenic ketone
Geranyl caprylate	0.08	Monoterpenic ester
Unknown	0.01	Unknown
Unknown	0.02	Unknown
Unknown	0.01	Unknown
Unknown	0.02	Unknown
Consolidated total	99.56	

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

Note: no correction factor was applied

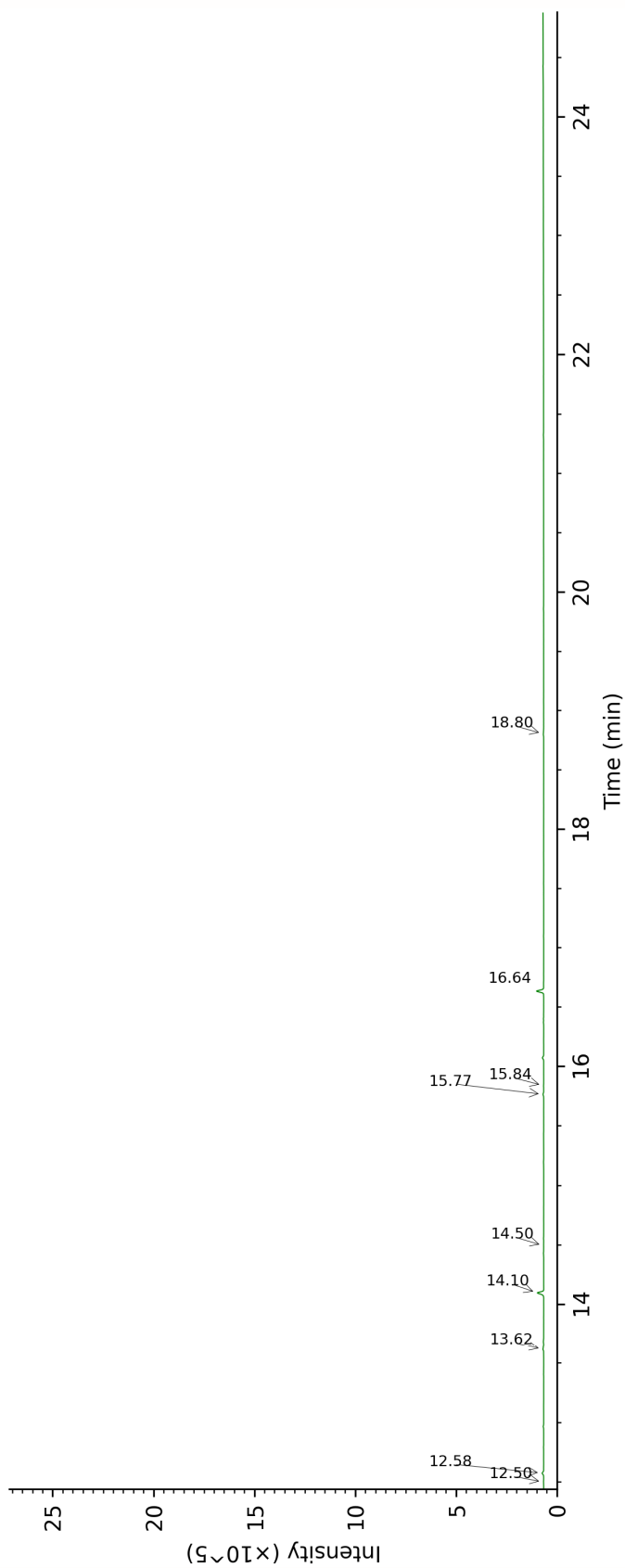
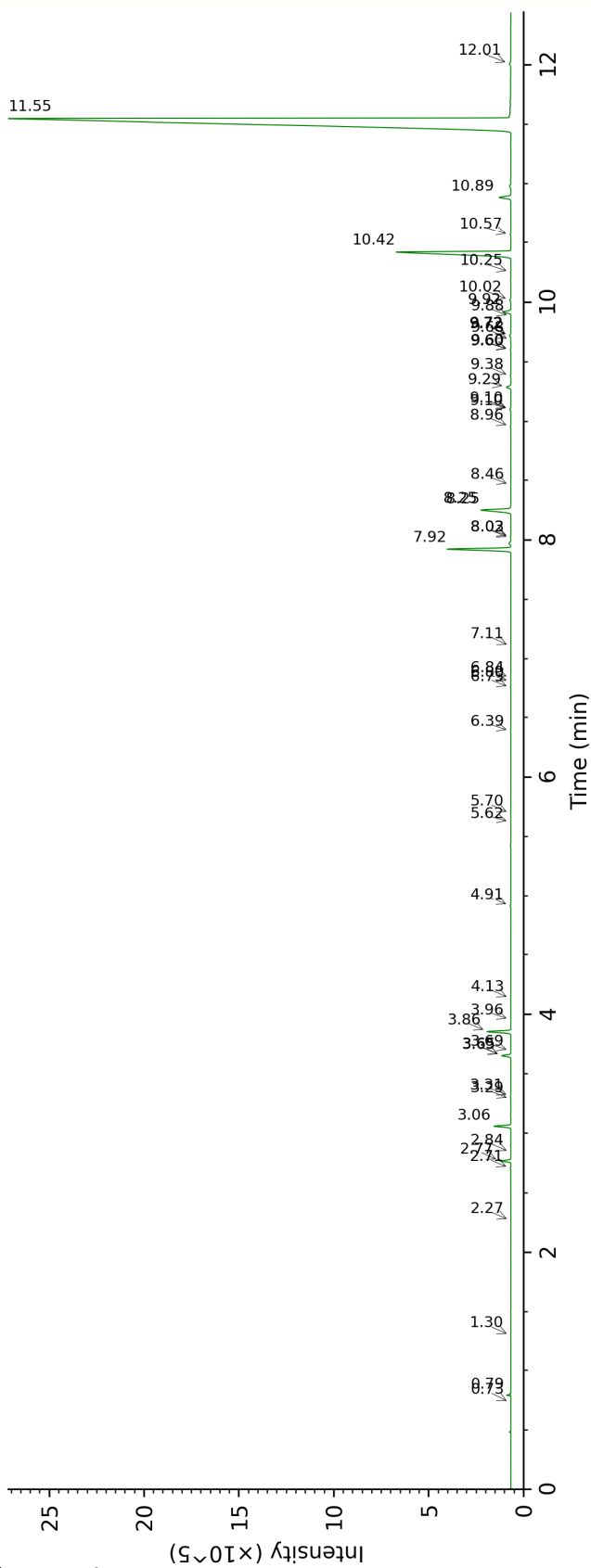
About "consolidated" data: The table above presents the breakdown of the sample volatile constituents after applying an algorithm to collapse data acquired from the multi-columns system of PhytoChemia into a single set of consolidated contents. In case of discrepancies between columns, the algorithm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

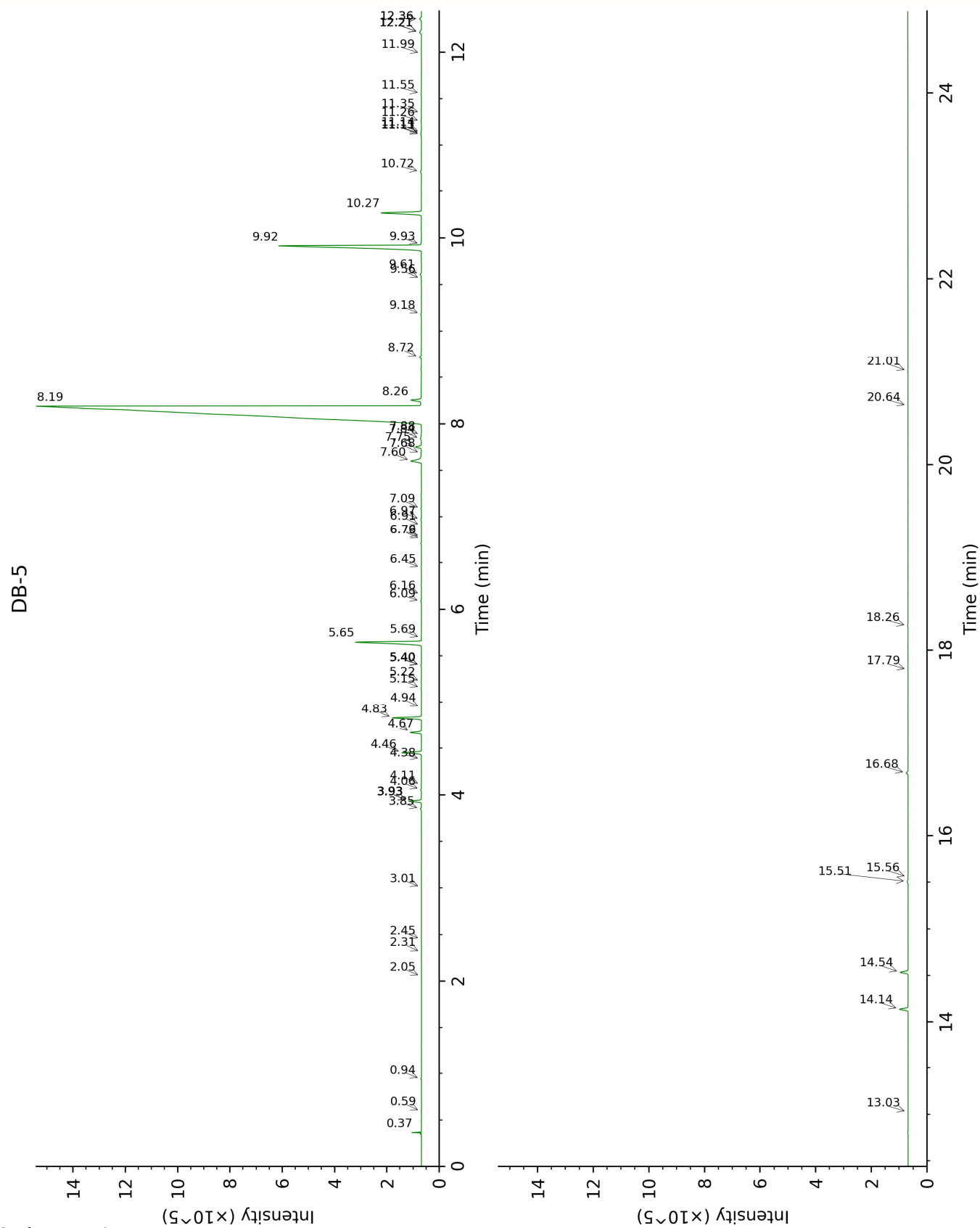
Unknowns: Unknown compounds' mass spectral data is presented in the "Full analysis data" table. The occurrence of unknown compounds is to be expected in many samples, and does not denote particular problems unless noted otherwise in the conclusion.

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

Ethanol	Column DB-WAX			Column DB-5		
	0.79	909.3	0.09	0.37	506.7	0.12
Isovaleral	0.73	886.2	0.01	0.59	643.7	tr
Isoamyl alcohol	3.31	1176.9	0.02	0.94	732.4	0.02
(3Z)-Hexenol	5.62	1344.6	tr	2.05	857.0	tr
Isoamyl acetate	2.27	1091.8	tr	2.31	878.8	tr
2-Heptanone	2.84	1139.7	tr	2.45	890.8	tr
α -Pinene	1.30	990.7	tr	3.01	931.2	tr
6-Methyl-5-hepten-2-one	4.91	1297.0	0.04	3.85	987.8	0.04
Myrcene	2.77	1134.1	0.45	3.93*	993.4	[0.46]
<i>trans</i> -Dehydroxylinalool oxide	3.29	1174.7	0.01	3.93*	993.4	[0.46]
α -Phellandrene	2.71	1129.3	0.02	4.06	1001.6	0.03
<i>cis</i> -Dehydroxylinalool oxide	3.69	1206.9	0.01	4.11	1005.1	0.01
<i>para</i> -Cymene	3.96	1226.2	0.01	4.38	1022.6	0.01
Limonene	3.06	1157.0	0.73	4.46	1027.1	0.75
(Z)- β -Ocimene	3.65*	1203.8	[0.42]	4.67	1040.9	0.41
(E)- β -Ocimene	3.86	1218.9	1.10	4.83	1050.9	1.10
γ -Terpinene	3.65*	1203.8	[0.42]	4.94	1058.1	0.01
<i>cis</i> -Linalool oxide (fur.)	6.39	1400.5	0.03	5.15	1071.6	0.01
Octanol	8.02	1523.7	0.01	5.22	1076.0	0.01
<i>trans</i> -Linalool oxide (fur.)	6.75	1427.9	0.01	5.40*	1087.2	[0.02]
Terpinolene	4.13	1239.3	0.01	5.40*	1087.2	[0.02]
Linalool	7.92	1516.6	3.26	5.65	1103.2	3.22
Nonanal	5.70	1349.9	0.01	5.69	1106.1	0.01
Unknown COGU I [m/z 95, 123 (73), 67 (64), 82 (54), 41 (47), 55 (27)...]				6.09	1131.6	0.03
Camphor	7.11	1454.6	0.01	6.16	1136.4	0.01
Citronellal	6.84	1434.8	0.01	6.45	1155.2	0.01
Terpinen-4-ol	8.46	1558.9	0.01	6.76	1175.3	0.01
Menthol	8.96	1598.0	0.03	6.79	1177.2	0.01
Isogeranial	8.03	1524.9	0.02	6.91	1185.1	0.01
α -Terpineol	9.60*	1650.4	[0.03]	6.97	1189.4	0.03
Methylchavicol	9.10*	1609.4	[0.06]	7.09	1197.0	0.02
Nerol	10.89	1758.0	0.64	7.60	1231.7	0.66
Citronellol	10.57	1730.5	0.04	7.68	1237.1	0.03

Neral	9.29	1624.7	0.24	7.75	1242.0	0.25
Piperitone	9.72*	1660.0	[0.08]	7.84	1247.9	0.06
Isoamyl hexanoate	6.80	1431.4	0.01	7.88	1250.9	0.01
Geraniol	11.55	1815.1	79.00	8.19	1272.0	79.61
Geranial	9.92	1676.5	0.43	8.26	1276.5	0.45
Geranyl formate	9.72*	1660.0	[0.08]	8.72	1308.5	0.09
2,3-Epoxygeraniol?				9.18	1337.9	0.03
Geranic acid				9.56	1364.8	0.02
Neryl acetate	10.02	1684.8	0.06	9.61	1368.1	0.06
Geranyl acetate	10.42	1718.0	8.85	9.92	1389.9	8.75
β -Elemene	8.25*	1542.4	[1.90]	9.93	1391.0	0.03
β -Caryophyllene	8.25*	1542.4	[1.90]	10.27	1415.5	1.85
α -Humulene	9.10*	1609.4	[0.06]	10.72	1449.2	0.05
Germacrene D	9.60*	1650.4	[0.03]	11.11	1478.9	0.01
Unknown CASA VII [m/z 189, 133 (75), 91 (71), 105 (69), 93 (44)... 204 (33)]	9.38	1632.4	0.04	11.13	1480.0	0.03
β -Selinene	9.68	1656.8	0.02	11.14	1480.9	0.01
Valencene	9.72*	1660.0	[0.08]	11.26	1489.7	0.02
α -Murolene	9.88	1673.2	0.01	11.35	1496.5	0.01
γ -Cadinene	10.25	1703.9	0.02	11.55	1512.4	0.02
α -Elemol				11.99	1546.4	tr
Geranyl butyrate	12.01	1856.4	0.08	12.21*	1564.3	[0.12]
(E)-Nerolidol	13.62	2004.3	0.04	12.21*	1564.3	[0.12]
Caryophyllene oxide isomer	12.50	1900.4	0.01	12.36*	1576.0	[0.10]
Caryophyllene oxide	12.58	1907.2	0.09	12.36*	1576.0	[0.10]
Caryophylladienol II	15.84	2224.9	0.01	13.03	1629.7	0.01
(2E,6E)-Farnesol	16.64	2308.3	0.38	14.14	1723.0	0.38
Geranyl caproate	14.10	2050.8	0.37	14.54	1757.5	0.34
(2E,6E)-Farnesyl acetate	15.77	2217.2	0.04	15.51	1844.3	0.05
Phytone	14.50	2089.3	tr	15.56	1848.6	0.01
Geranyl caprylate				16.68	1952.5	0.08
Unknown DRMO VII [m/z 69, 41 (49), 81 (47), 93 (21), 95 (30), 43 (26)...]				17.79	2061.4	0.01

Unknown DRMO VI [m/z 69, 41 (37), 81 (23), 95 (19), 109 (18)...]	18.80	2549.9	0.02	18.26	2108.5	0.02
Unknown CYMA III [m/z 69, 81 (70), 93 (37), 95 (31), 41 (24)...]				20.64	2362.9	0.01
Unknown MOFI VII [m/z 69, 81 (54), 95 (26), 41 (20), 82 (16), 123 (16)...]				21.01	2404.9	0.02
Total reported	98.81%			99.56%		

*: 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