Date : 2026-02-23

Certificate of Analysis - GC Profiling

Sample Identification

Internal code : 26A19-PTH05
Customer Identification : Palmarosa - Nepal - P10116R
Type : Essential Oil
Source : *Cymbopogon martini*
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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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 2026-01-21 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 : Sylvain Mercier, M. Sc., Chimiste 2014-005
Date : 2026-01-21

Physicochemical data

Refractive index : 1.473 ± 0.0003 (20 °C)
Method : PC-MAT-016 - Measure of the refractive index of a liquid.
Analyst : Cindy Caron B. Sc.
Date : 2026-01-20

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	0.12	Aliphatic alcohol
Isobutyral	tr	Aliphatic aldehyde
2-Methyl-3-buten-2-ol	0.02	Aliphatic alcohol
Isovaleral	0.01	Aliphatic aldehyde
2-Methylbutyral	tr	Aliphatic aldehyde
2-Ethylfuran	tr	Furan
Isoamyl alcohol	0.06	Aliphatic alcohol
(3*Z*)-Hexenol	0.02	Aliphatic alcohol
Hexanol	tr	Aliphatic alcohol
Isoamyl acetate	0.02	Aliphatic ester
2-Methylbutyl acetate	0.01	Aliphatic ester
2-Heptanone	0.01	Aliphatic ketone
Prenyl acetate	0.01	Aliphatic ester
α-Pinene	0.01	Monoterpene
6-Methyl-5-hepten-2-one	0.07	Aliphatic ketone
Myrcene	0.16	Monoterpene
trans-Dehydroxylinalool oxide	0.03	Monoterpenic ether
6-Methyl-5-hepten-2-ol	0.01	Aliphatic alcohol
cis-Dehydroxylinalool oxide	0.02	Monoterpenic ether
para-Cymene	0.01	Monoterpene
Limonene	0.11	Monoterpene
1,8-Cineole	[0.04]	Monoterpenic ether
β-Phellandrene	[0.04]	Monoterpene
(*Z*)-β-Ocimene	0.29	Monoterpene
(*E*)-β-Ocimene	1.33	Monoterpene
2,6-Dimethyl-5-heptenal (melonal)	0.01	Aliphatic aldehyde
cis-Linalool oxide (fur.)	0.02	Monoterpenic alcohol
Octanol	0.03	Aliphatic alcohol
Terpinolene	0.02	Monoterpene
trans-Linalool oxide (fur.)	0.01	Monoterpenic alcohol
Rosefuran	0.01	Monoterpenic ether
Linalool	2.61	Monoterpenic alcohol
Nonanal	0.02	Aliphatic aldehyde
Unknown	tr	Unknown
Camphor	0.01	Monoterpenic ketone
Nerol oxide	0.01	Aliphatic ether
Menthol	0.01	Monoterpenic alcohol
Terpinen-4-ol	0.01	Monoterpenic alcohol
Nonanol	0.02	Aliphatic alcohol
α-Terpineol	0.04	Monoterpenic alcohol

Nerol	0.16	Monoterpenic alcohol
2,3-Epoxygeranial?	0.01	Monoterpenic aldehyde
Citronellol	0.01	Monoterpenic alcohol
Neral	0.27	Monoterpenic aldehyde
Isoamyl hexanoate	0.01	Aliphatic ester
Geraniol	76.21	Monoterpenic alcohol
Geranial	0.67	Monoterpenic aldehyde
Unknown	0.01	Oxygenated monoterpene
Geranyl formate	0.14	Monoterpenic ester
2,3-Epoxygeraniol?	0.09	Oxygenated monoterpene
Geranic acid	0.02	Aliphatic acid
Unknown	0.04	Unknown
Neryl acetate	0.02	Monoterpenic ester
β-Elemene	0.06	Sesquiterpene
Geranyl acetate	11.85	Monoterpenic ester
α-Gurjunene	0.01	Sesquiterpene
β-Caryophyllene	1.28	Sesquiterpene
α-Guaiene	[0.02]	Sesquiterpene
trans-α-Bergamotene	[0.02]	Sesquiterpene
α-Humulene	0.09	Sesquiterpene
Selina-4,11-diene	0.01	Sesquiterpene
Germacrene D	0.01	Sesquiterpene
Unknown	0.07	Sesquiterpene
β-Selinene	0.02	Sesquiterpene
Valencene	0.03	Sesquiterpene
α-Selinene	0.02	Sesquiterpene
γ-Cadinene	0.04	Sesquiterpene
α-Elemol	0.02	Sesquiterpenic alcohol
Unknown	0.01	Unknown
Geranyl butyrate	0.21	Monoterpenic ester
(*E*)-Nerolidol	0.08	Sesquiterpenic alcohol
Caryophyllene oxide	0.19	Sesquiterpenic ether
Caryophyllene oxide isomer	0.02	Sesquiterpenic ether
Humulene epoxide II	0.01	Sesquiterpenic ether
Caryophylladienol II	0.01	Sesquiterpenic alcohol
Neointermedeol	0.01	Sesquiterpenic alcohol
(3*Z*)-Caryophylla-3,8(13)-dien-5β-ol	0.01	Sesquiterpenic alcohol
(2*E*,6*Z*)-Farnesal	0.01	Sesquiterpenic aldehyde
(2*E*,6*E*)-Farnesol	0.69	Sesquiterpenic alcohol
(2*E*,6*E*)-Farnesal	0.02	Sesquiterpenic aldehyde
Geranyl caproate	0.74	Monoterpenic ester
(2*E*,6*E*)-Farnesyl acetate	0.10	Sesquiterpenic ester
Phytone	0.02	Terpenic ketone
Geranyl caprylate	0.17	Monoterpenic ester
Unknown	0.01	Unknown

Unknown	0.03	Unknown
Unknown	0.05	Unknown
Unknown	0.04	Unknown
Consolidated total	**98.88**	

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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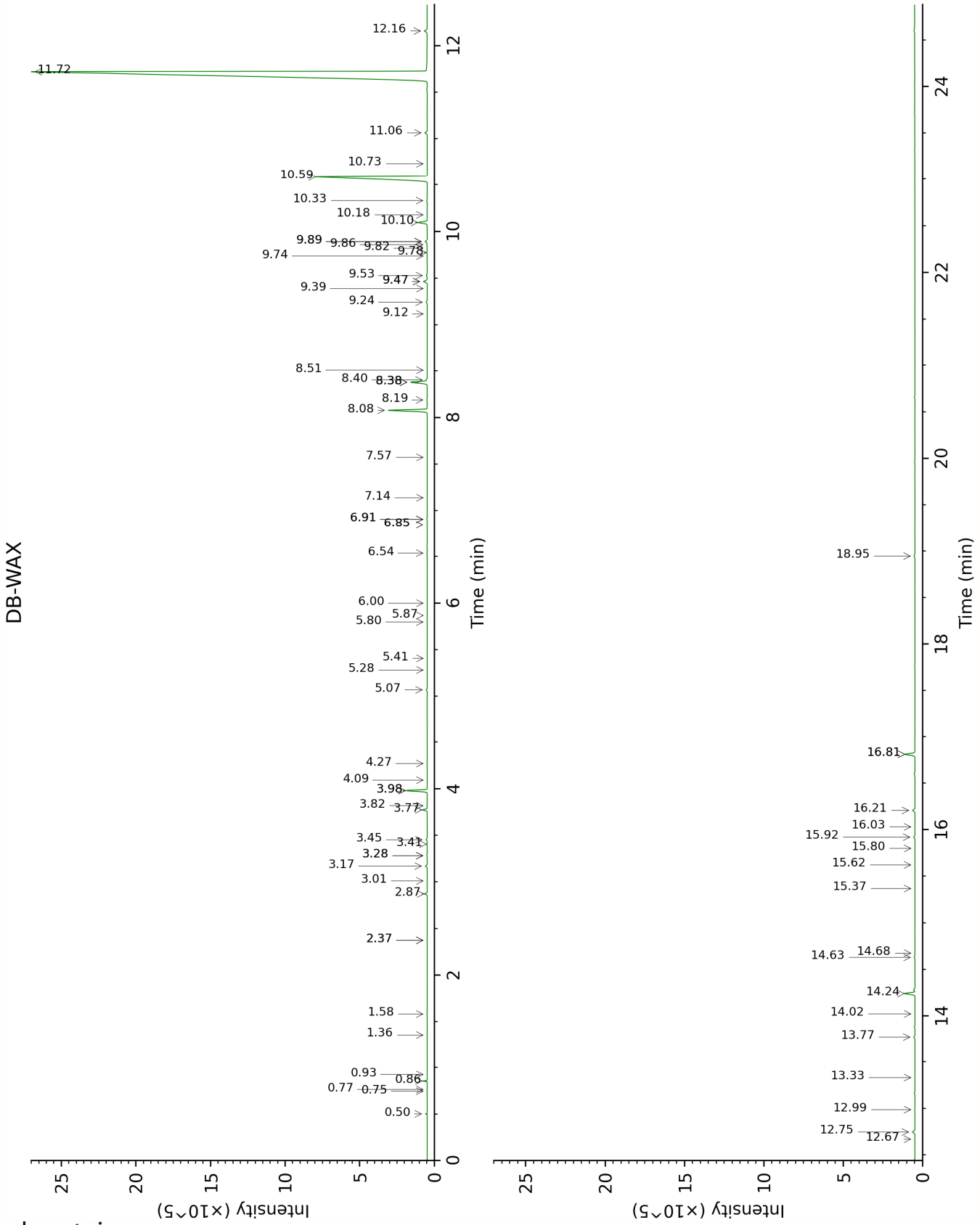
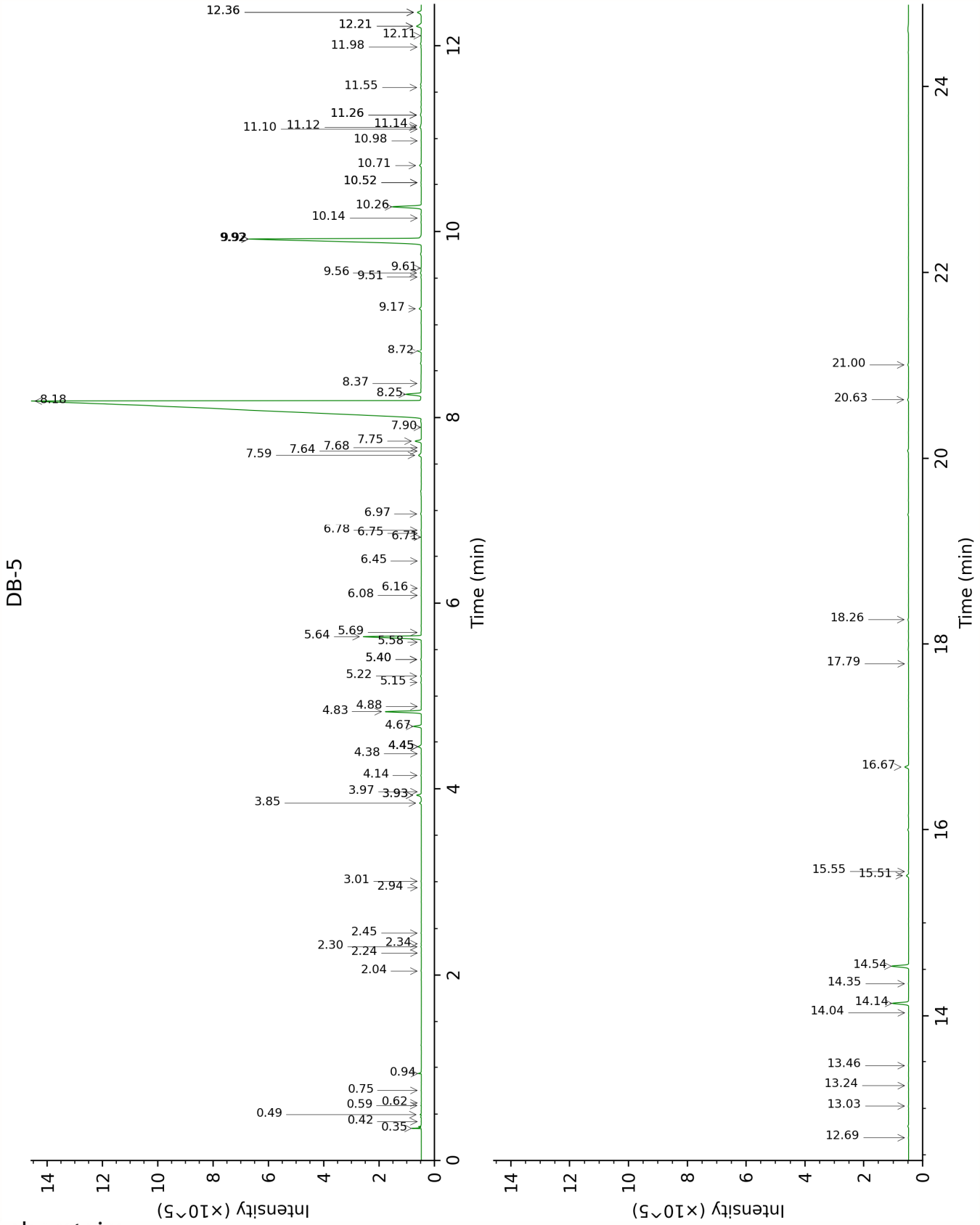

DB-WAX
Time (min)
Intensity (×10^5)
12.16
11.72
11.06
10.73
10.59
10.33
10.18
10.10
9.89
9.86
9.82
9.78
9.74
9.53
9.47
9.39
9.24
9.12
8.51
8.40
8.38
8.19
8.08
7.57
7.14
6.91
6.85
6.54
6.00
5.87
5.80
5.41
5.28
5.07
4.27
4.09
3.98
3.82
3.77
3.45
3.41
3.28
3.17
3.01
2.87
2.37
1.58
1.36
0.93
0.86
0.77
0.75
0.50
18.95
16.81
16.21
16.03
15.92
15.80
15.62
15.37
14.63
14.68
14.24
14.02
13.77
13.33
12.99
12.75
12.67


DB-5
Time (min)
Intensity (×10^5)
12.36
12.21
12.11
11.98
11.55
11.26
11.14
11.12
11.10
10.98
10.71
10.52
10.26
10.14
9.92
9.61
9.56
9.51
9.17
8.72
8.37
8.25
8.18
7.90
7.75
7.68
7.64
7.59
6.97
6.78
6.75
6.71
6.45
6.16
6.08
5.69
5.64
5.58
5.40
5.22
5.15
4.88
4.83
4.67
4.45
4.38
4.14
3.97
3.93
3.85
3.01
2.94
2.45
2.34
2.30
2.24
2.04
0.94
0.75
0.62
0.59
0.49
0.42
0.35
21.00
20.63
18.26
17.79
16.67
15.55
15.51
14.54
14.35
14.14
14.04
13.46
13.24
13.03
12.69

FULL ANALYSIS DATA

	Column DB-WAX			Column DB-5		
Ethanol	0.86	909.4	0.13	0.35	505.8	0.12
Isobutyral	0.50	784.5	0.04	0.42	540.9	tr
2-Methyl-3-buten-2-ol	1.58	1016.0	0.01	0.49	605.8	0.02
Isovaleral	0.76	888.8	0.01	0.59	642.8	0.01
2-Methylbutyral	0.75	881.9	tr	0.62	653.1	tr
2-Ethylfuran	0.93	920.7	tr	0.75	702.4	tr
Isoamyl alcohol	3.45	1180.1	0.08	0.94	731.1	0.06
(3*Z*)-Hexenol	5.80	1350.7	0.02	2.04	855.9	0.02
Hexanol	5.41	1322.8	tr	2.24	872.4	tr
Isoamyl acetate	2.37*	1094.5	[0.02]	2.30	878.1	0.02
2-Methylbutyl acetate	2.37*	1094.5	[0.02]	2.34	880.8	0.01
2-Heptanone	3.01	1145.4	0.02	2.45	890.6	0.01
Prenyl acetate	3.98*	1220.2	[1.34]	2.94	926.3	0.01
α-Pinene	1.36	990.8	0.01	3.01	930.9	0.01
6-Methyl-5-hepten-2-one	5.07	1300.3	0.07	3.85	987.4	0.07
Myrcene	2.87	1134.5	0.16	3.93*	993.1	[0.20]
trans-Dehydroxylinalool oxide	3.41	1176.5	0.03	3.93*	993.1	[0.20]
6-Methyl-5-hepten-2-ol	6.91*	1431.3	[0.03]	3.97	995.6	0.01
cis-Dehydroxylinalool oxide	3.82	1208.3	0.02	4.14	1007.3	0.02
para-Cymene	4.09	1228.4	0.01	4.38	1022.1	0.01
Limonene	3.17	1157.9	0.11	4.45*	1026.9	[0.15]
1,8-Cineole	3.28*	1166.7	[0.04]	4.45*	1026.9	[0.15]
β-Phellandrene	3.28*	1166.7	[0.04]	4.45*	1026.9	[0.15]
(*Z*)-β-Ocimene	3.77	1205.0	0.30	4.67	1040.8	0.29
(*E*)-β-Ocimene	3.98*	1220.2	[1.34]	4.83	1050.9	1.33
2,6-Dimethyl-5-heptenal (melonal)	5.28	1313.8	0.01	4.88	1054.4	0.01
cis-Linalool oxide (fur.)	6.54	1403.9	0.03	5.15	1071.3	0.02
Octanol	8.19	1527.4	0.04	5.22	1075.7	0.03
Terpinolene	4.27	1241.5	0.02	5.40*	1087.1	[0.03]
trans-Linalool oxide (fur.)	6.91*	1431.3	[0.03]	5.40*	1087.1	[0.03]
Rosefuran	6.00	1365.3	0.02	5.58	1099.0	0.01

Linalool	8.08	1518.8	2.64	5.64	1102.8	2.61
Nonanal	5.87	1355.8	tr	5.69	1105.7	0.02
Unknown COGU I [m/z 95, 123 (73), 67 (64), 82 (54), 41 (47), 55 (27)...]				6.08	1131.6	tr
Camphor	7.14	1448.5	0.01	6.16	1136.6	0.01
Nerol oxide	6.85*	1426.7	[0.01]	6.45	1155.7	0.01
Menthol	9.12	1599.3	0.01	6.71	1172.4	0.01
Terpinen-4-ol	8.51	1552.2	0.01	6.75	1175.0	0.01
Nonanol	9.47*	1627.4	[0.29]	6.78	1177.2	0.02
α-Terpineol	9.78	1652.4	0.03	6.97	1189.2	0.04
Nerol	11.06	1759.5	0.17	7.60	1231.4	0.16
2,3-Epoxygeranial?				7.64	1234.6	0.01
Citronellol	10.73	1731.3	0.01	7.68	1237.1	0.01
Neral	9.47*	1627.4	[0.29]	7.75	1241.9	0.27
Isoamyl hexanoate	6.85*	1426.7	[0.01]	7.90	1252.1	0.01
Geraniol	11.72	1815.8	75.97	8.18	1271.5	76.21
Geranial	10.10	1678.4	0.67	8.25	1276.5	0.67
Unknown CYFL VII [m/z 43, 69 (77), 41 (70), 109 (54)... 152 (6)]	12.99	1929.1	0.02	8.37	1284.5	0.01
Geranyl formate	9.89*	1661.9	[0.15]	8.72	1308.6	0.14
2,3-Epoxygeraniol?				9.17	1337.4	0.09
Geranic acid				9.51	1361.5	0.02
Unknown CYMA V [m/z 81, 59 (99), 41 (82), 85 (79), 43 (74), 71 (60)...]	14.63	2084.5	0.05	9.56	1364.6	0.04
Neryl acetate	10.18	1685.0	0.02	9.61	1368.3	0.02
β-Elemene	8.40	1544.0	0.06	9.92*	1390.4	[11.79]
Geranyl acetate	10.59	1718.9	11.85	9.92*	1390.4	[11.79]
α-Gurjunene	7.57	1480.6	0.01	10.14	1406.3	0.01
β-Caryophyllene	8.38*	1542.1	[1.31]	10.26	1415.4	1.28
α-Guaiene	8.38*	1542.1	[1.31]	10.52*	1434.8	[0.02]
trans-α-Bergamotene	8.38*	1542.1	[1.31]	10.52*	1434.8	[0.02]
α-Humulene	9.24	1609.4	0.08	10.71	1449.1	0.09
Selina-4,11-diene	9.39	1621.3	0.01	10.98	1469.0	0.01
Germacrene D	9.74	1649.3	0.02	11.10	1478.4	0.01
Unknown CASA	9.53	1632.5	0.07	11.12	1479.9	0.07

VII [m/z 189, 133 (75), 91 (71), 105 (69), 93 (44)... 204 (33)]						
β-Selinene	9.82	1656.1	0.03	11.14	1481.3	0.02
Valencene	9.86	1659.2	0.03	11.26*	1489.8	[0.06]
α-Selinene	9.89*	1661.9	[0.15]	11.26*	1489.8	[0.06]
γ-Cadinene	10.33	1697.4	0.04	11.55	1512.2	0.04
α-Elemol	14.02	2026.1	tr	11.98	1546.5	0.02
Unknown CYMA I [m/z 59, 68 (63), 43 (31), 67 (27), 81 (27), 94 (25), 69 (23), 41 (22), 84 (20)...]				12.11	1556.1	0.01
Geranyl butyrate	12.16	1854.4	0.21	12.21*	1564.2	[0.27]
(*E*)-Nerolidol	13.77	2002.1	0.08	12.21*	1564.2	[0.27]
Caryophyllene oxide	12.75	1907.0	0.19	12.36*	1576.0	[0.20]
Caryophyllene oxide isomer	12.67	1899.9	0.02	12.36*	1576.0	[0.20]
Humulene epoxide II	13.33	1961.0	0.01	12.68	1601.8	0.01
Caryophylladienol II	16.03	2225.7	0.02	13.03	1629.9	0.01
Neointermedeol	15.62	2183.6	0.02	13.24	1648.1	0.01
(3*Z*)-Caryophylla-3,8(13)-dien-5β-ol	16.81*	2307.4	[0.71]	13.46	1666.0	0.01
(2*E*,6*Z*)-Farnesal	15.37	2158.2	0.02	14.04	1714.0	0.01
(2*E*,6*E*)-Farnesol	16.81*	2307.4	[0.71]	14.14	1722.9	0.69
(2*E*,6*E*)-Farnesal	15.80	2201.6	0.01	14.35	1741.3	0.02
Geranyl caproate	14.24	2047.1	0.76	14.54	1757.7	0.74
(2*E*,6*E*)-Farnesyl acetate	15.92	2214.2	0.09	15.51	1844.1	0.10
Phytone	14.68	2088.9	0.02	15.55	1848.1	0.02
Geranyl caprylate	16.21	2244.1	0.18	16.67	1952.4	0.17
Unknown DRMO VII [m/z 69, 41 (49), 81 (47), 93 (21), 95 (30), 43 (26)...]				17.79	2061.1	0.01
Unknown DRMO VI [m/z 69, 41 (37), 81 (23), 95 (19), 109 (18)...]	18.94	2545.4	0.07	18.26	2108.5	0.03

Unknown CYMA III [m/z 69, 81 (70), 93 (37), 95 (31), 41 (24)...]				20.63	2362.4	0.05
Unknown MOFI VII [m/z 69, 81 (54), 95 (26), 41 (20), 82 (16), 123 (16)...]				21.00	2404.2	0.04
Total reported	98.54%			98.74%		

*: 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