Date : September 27, 2022

Certificate of Analysis – GC Profiling

Sample identification

Internal code : 22I21-PTH04
Customer identification : Blue Yarrow ORGANIC - Bulgaria - Y50106R
Type : Essential oil
Source : *Achillea millefolium*
Customer : Plant Therapy

Analysis

Method: PC-MAT-014 ISO - Analysis of the composition of an essential oil or other volatile liquid by FAST GC-FID (in French); identifications validated by GC-MS.
Analyst : Amélie Simard, Analyste
Analysis date : September 26, 2022

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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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

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PHYSICOCHEMICAL DATA

Physical aspect: Bright blue liquid
Refractive index: 1.4990 ± 0.0003 (20 °C; method PC-MAT-016)

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
Dimethylsulfide	0.01	Aliphatic sulfide
Isovaleral	0.03	Aliphatic aldehyde
2-Methylbutyral	0.02	Aliphatic aldehyde
Valeral	0.01	Aliphatic aldehyde
2-Ethylfuran	0.02	Furan
Isoamyl alcohol	0.07	Aliphatic alcohol
2-Methylbutanol	0.04	Aliphatic alcohol
Octene	0.01	Alkene
Octane	0.01	Alkane
5,5-Dimethyl-2-ethyl-1,3-cyclopentadiene?	tr	Normonoterpene
7-Methyloctene	0.01	Alkene
(3*Z*)-Hexenol	0.36	Aliphatic alcohol
Hexanol	0.34	Aliphatic alcohol
3-Acetyl-3-methylcyclopentene	0.01	Aliphatic ketone
Nonene	0.01	Alkene
Santolinatriene	0.10	Monoterpene
Hashishene	0.01	Monoterpene
Tricyclene	0.01	Monoterpene
α-Thujene	0.26	Monoterpene
Artemisiatriene	0.01	Monoterpene
α-Pinene	1.21	Monoterpene
Unknown	0.02	Simple phenolic
α-Fenchene	tr	Monoterpene
Camphene	0.14	Monoterpene
Thuja-2,4(10)-diene	0.01	Monoterpene
Benzaldehyde	0.03	Simple phenolic
Sabinene	10.54	Monoterpene
β-Pinene	8.14	Monoterpene
Octen-3-ol	0.08	Aliphatic alcohol
6-Methyl-5-hepten-2-one	0.05	Aliphatic ketone
Dehydro-1,8-cineole	0.01	Monoterpenic ether
2-Pentylfuran	0.05	Furan
Myrcene	0.40	Monoterpene
Unknown	0.02	Monoterpene
Yomogi alcohol isomer	tr	Monoterpenic alcohol
Pseudolimonene	0.04	Monoterpene
α-Phellandrene	0.06	Monoterpene
Octanal	0.01	Aliphatic aldehyde
Yomogi alcohol	0.31	Monoterpenic alcohol
Δ3-Carene	0.01	Monoterpene
(3*Z*)-Hexenyl acetate	0.03	Aliphatic ester
α-Terpinene	0.54	Monoterpene
para-Cymene	0.31	Monoterpene
1,8-Cineole	2.34*	Monoterpenic ether
β-Phellandrene	2.34*	Monoterpene

Limonene	0.73	Monoterpene
(*Z*)-β-Ocimene	0.17	Monoterpene
(*E*)-β-Ocimene	0.38	Monoterpene
γ-Terpinene	0.95	Monoterpene
Artemisia ketone	3.35	Monoterpenic ketone
cis-Sabinene hydrate	0.12	Monoterpenic alcohol
cis-Linalool oxide (fur.)	0.06	Monoterpenic alcohol
Octanol	0.02	Aliphatic alcohol
Artemisia alcohol	0.07	Monoterpenic alcohol
trans-Linalool oxide (fur.)	0.02	Monoterpenic alcohol
Terpinolene	0.27	Monoterpene
trans-Sabinene hydrate	0.09	Monoterpenic alcohol
Filifolone	0.02	Monoterpenic ketone
Linalool	2.90	Monoterpenic alcohol
Nonanal	0.11	Aliphatic aldehyde
Unknown	0.01	Oxygenated monoterpene
endo-Fenchol	0.03	Monoterpenic alcohol
cis-para-Menth-2-en-1-ol	0.03	Monoterpenic alcohol
Chrysanthenone	0.09	Monoterpenic ketone
α-Campholenal	0.02	Monoterpenic aldehyde
4-Hydroxy-4-methylcyclohex-2-enone	0.01	Aliphatic alcohol
Unknown	0.06	Unknown
trans-Pinocarveol	0.11	Monoterpenic alcohol
trans-para-Menth-2-en-1-ol	tr	Monoterpenic alcohol
Camphor	0.27	Monoterpenic ketone
Unknown	0.03	Unknown
Nerol oxide	0.01	Aliphatic ether
Isoborneol	0.02	Monoterpenic alcohol
Pinocarvone	0.15	Monoterpenic ketone
cis-Chrysanthenol	0.29	Monoterpenic alcohol
Borneol	0.42	Monoterpenic alcohol
Isopinocamphone	0.03	Monoterpenic ketone
Lavandulol	0.36	Monoterpenic alcohol
Artemisyl acetate	0.02	Monoterpenic ester
Terpinen-4-ol	4.42	Monoterpenic alcohol
Menthol	0.03	Monoterpenic alcohol
Thuj-3-en-10-al	0.04	Monoterpenic aldehyde
para-Cymen-8-ol	0.01	Monoterpenic alcohol
Unknown	0.03	Unknown
α-Terpineol	1.28	Monoterpenic alcohol
Myrtenal	0.07	Monoterpenic aldehyde
Myrtenol	0.07	Monoterpenic alcohol
Safranal	0.05	Monoterpenic aldehyde
Unknown	0.02	Unknown
Decanal	0.04	Aliphatic aldehyde
trans-Piperitol	0.07	Monoterpenic alcohol
Fragranol	0.02	Monoterpenic alcohol
β-Cyclocitral	0.04	Monoterpenic aldehyde
trans-Carveol	0.04	Monoterpenic alcohol
Nerol	0.12	Monoterpenic alcohol
trans-Chrysanthenyl acetate	0.01	Monoterpenic ester
Cuminal	0.07	Monoterpenic aldehyde

Carvone	0.03	Monoterpenic ketone
Neral	0.04	Monoterpenic aldehyde
Piperitone	0.08	Monoterpenic ketone
cis-Chrysanthenyl acetate	0.07	Monoterpenic ester
Geraniol	0.29	Monoterpenic alcohol
Linalyl acetate	0.03	Monoterpenic ester
Chavicol	0.01	Phenylpropanoid
Vitispirane ?	0.07	Terpenic ether
4-Thujen-2α-yl acetate	0.47	Monoterpenic ester
Bornyl acetate	0.33	Monoterpenic ester
trans-Chrysanthemyl acetate	0.17	Monoterpenic ester
trans-Sabinyl acetate	0.01	Monoterpenic ester
trans-Pinocarvyl acetate	0.04	Monoterpenic ester
Lavandulyl acetate	0.24	Monoterpenic ester
Thymol	0.05	Monoterpenic alcohol
Unknown	0.02	Oxygenated monoterpene
Carvacrol	0.05	Monoterpenic alcohol
(2*E*,4*E*)-Decadienal	0.02	Aliphatic aldehyde
1,4-para-Menthadien-7-ol	0.03	Monoterpenic alcohol
Bicycloelemene	0.02	Sesquiterpene
δ-Elemene	0.10	Sesquiterpene
α-Terpinyl acetate	0.04	Monoterpenic ester
α-Cubebene	0.01	Sesquiterpene
Unknown	0.03	Monoterpenic ester
Eugenol	0.01	Phenylpropanoid
Neryl acetate	0.06	Monoterpenic ester
α-Ylangene	0.02	Sesquiterpene
α-Copaene	0.66	Sesquiterpene
Daucene	0.02	Sesquiterpene
β-Bourbonene	0.46	Sesquiterpene
cis-β-Elemene	0.02	Sesquiterpene
Lavandulyl propionate	0.03	Monoterpenic ester
Geranyl acetate	0.05	Monoterpenic ester
Dehydroionene analog	0.13	Terpene derivative
β-Elemene	0.09	Sesquiterpene
(*Z*)-Jasmone	0.05	Jasmonate
Isocaryophyllene	0.11	Sesquiterpene
α-Gurjunene	0.04	Sesquiterpene
β-Caryophyllene	10.89	Sesquiterpene
β-Copaene	0.15	Sesquiterpene
trans-α-Bergamotene	0.11	Sesquiterpene
Isogermacrene D	0.06	Sesquiterpene
Sesquisabinene A	0.21	Sesquiterpene
α-Himachalene	0.02	Sesquiterpene
α-Humulene	1.42	Sesquiterpene
allo-Aromadendrene	0.03	Sesquiterpene
cis-Muurola-4(15),5-diene	0.08	Sesquiterpene
(*E*)-β-Farnesene	1.04	Sesquiterpene
trans-Cadina-1(6),4-diene	0.03	Sesquiterpene
γ-Muurolene	0.04	Sesquiterpene
Germacrene D	13.43	Sesquiterpene
β-Selinene	0.09	Sesquiterpene

ar-Curcumene	0.13	Sesquiterpene
(*E*)-β-Ionone	0.04	Apocarotenoid
Bicyclogermacrene	0.98	Sesquiterpene
α-Selinene	0.05	Sesquiterpene
α-Muurolene	0.57	Sesquiterpene
(3*Z*,6*E*)-α-Farnesene	0.16	Sesquiterpene
Germacrene A	0.05	Sesquiterpene
Lavandulyl isovalerate	0.03	Monoterpenic ester
(3*E*,6*E*)-α-Farnesene	0.44	Sesquiterpene
β-Bisabolene	0.06	Sesquiterpene
β-Curcumene	0.04	Sesquiterpene
γ-Cadinene	0.07	Sesquiterpene
Cubebol	0.05	Sesquiterpenic alcohol
(2*E*?,8*Z*?)-Matricaria ester	0.04	Polyyne ester
Sesquicineole	0.02	Sesquiterpenic ether
δ-Cadinene	0.36	Sesquiterpene
β-Sesquiphellandrene	0.20	Sesquiterpene
(2*Z*?,8*Z*?)-Matricaria ester	0.10	Polyyne ester
trans-Cadina-1,4-diene	0.01	Sesquiterpene
α-Cadinene	0.02	Sesquiterpene
Isocaryophyllene epoxide B	0.07	Sesquiterpenic ether
α-Elemol	0.06	Sesquiterpenic alcohol
Unknown	0.02	Oxygenated sesquiterpene
Palustrol	0.03	Sesquiterpenic alcohol
(*E*)-Nerolidol	0.39	Sesquiterpenic alcohol
Spathulenol	0.15	Sesquiterpenic alcohol
Unknown	0.03	Oxygenated sesquiterpene
Caryophyllene oxide	1.79	Sesquiterpenic ether
Caryophyllene oxide isomer	0.14	Sesquiterpenic ether
Unknown	0.05	Oxygenated sesquiterpene
Viridiflorol	0.03	Sesquiterpenic alcohol
Salvial-4(14)-en-1-one	0.07	Aliphatic alcohol
Copaborneol	0.02	Sesquiterpenic alcohol
Fokienol	0.03	Terpenic alcohol
Humulene epoxide II	0.14	Sesquiterpenic ether
Junenol	0.07	Sesquiterpenic alcohol
10-epi-γ-Eudesmol	0.05	Sesquiterpenic alcohol
1-epi-Cubenol	0.07	Sesquiterpenic alcohol
Caryophylladienol I	0.04	Sesquiterpenic alcohol
cis-Cadin-4-en-7-ol	0.04	Sesquiterpenic alcohol
γ-Eudesmol	0.09	Sesquiterpenic alcohol
Caryophylladienol II	0.10	Sesquiterpenic alcohol
τ-Cadinol	0.04	Sesquiterpenic alcohol
τ-Muurolol	0.05	Sesquiterpenic alcohol
β-Eudesmol	0.41	Sesquiterpenic alcohol
α-Eudesmol	0.09	Sesquiterpenic alcohol
α-Cadinol	0.29	Sesquiterpenic alcohol
trans-Calamenen-10-ol	0.13	Sesquiterpenic alcohol
Unknown	0.02	Oxygenated sesquiterpene
Unknown	0.33	Oxygenated sesquiterpene
(3*Z*)-Caryophylla-3,8(13)-dien-5β-ol	0.06	Sesquiterpenic alcohol
Eudesma-4(15),7-dien-1β-ol	0.14	Sesquiterpenic alcohol

Germacra-4(15),5,10(14)-trien-1α-ol	0.07	Sesquiterpenic alcohol
α-Bisabolol	0.07	Sesquiterpenic alcohol
Unknown	0.10	Oxygenated sesquiterpene
Unknown	0.08	Lignan
Pentadecanal?	0.01	Aliphatic aldehyde
Chamazulene	10.00	Azulene
Unknown	0.02	Oxygenated sesquiterpene
Unknown	0.11	Unknown
Unknown	0.03	Oxygenated sesquiterpene
Unknown	0.03	Oxygenated sesquiterpene
Unknown	0.05	Unknown
Phytone	0.22	Terpenic ketone
Palmitic acid	0.21	Aliphatic acid
Heneicosane	0.02	Alkane
Phytol	0.47	Diterpenic alcohol
Achilleamide?	0.06	Amide
trans-Geranylgeraniol	0.03	Diterpenic alcohol
Unknown	0.14	Unknown
Tricosane	0.06	Alkane
Tetracosane	0.03	Alkane
Pentacosane	0.08	Alkane
Consolidated total	**95.23%**	

*: Individual compounds concentration could not be found due to overlapping coelutions on columns considered
[xx]: Duplicate percentage due to coelutions, not taken into account in the consolidated total
tr: The compound has been detected below 0.005% of 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.

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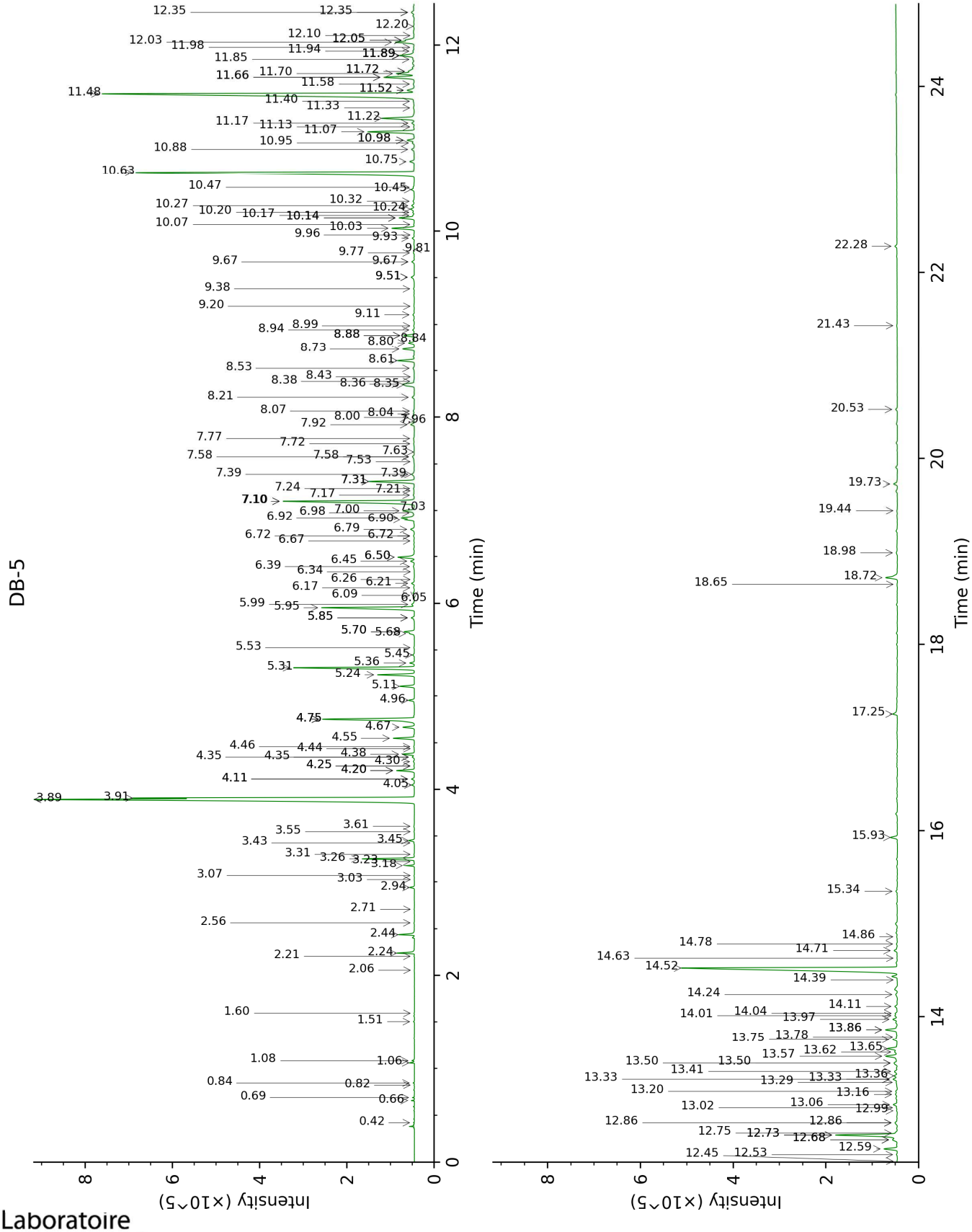

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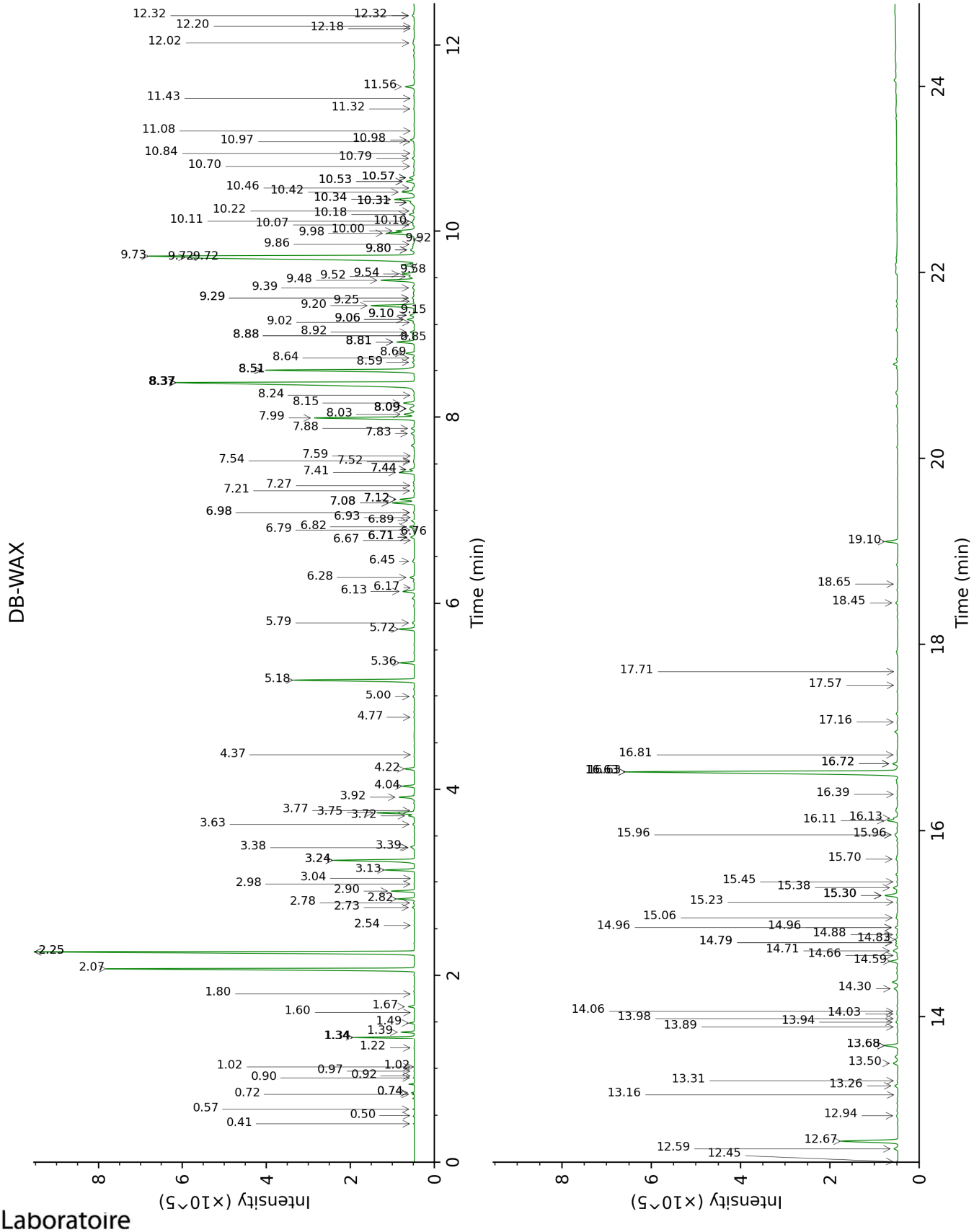
DB-WAX
Intensity (×10^5)
Time (min)
12.32
12.20
12.18
12.02
11.56
11.43
11.32
11.08
10.97
10.98
10.84
10.79
10.70
10.53
10.57
10.46
10.42
10.34
10.31
10.22
10.18
10.11
10.07
10.10
9.98
10.00
9.92
9.86
9.80
9.73
9.72
9.58
9.54
9.52
9.48
9.39
9.29
9.25
9.20
9.15
9.10
9.06
9.02
8.92
8.88
8.85
8.81
8.69
8.64
8.59
8.51
8.37
8.24
8.15
8.09
8.03
7.99
7.88
7.83
7.59
7.54
7.52
7.44
7.41
7.27
7.21
7.12
7.08
6.98
6.93
6.89
6.82
6.79
6.76
6.71
6.67
6.45
6.28
6.17
6.13
5.79
5.72
5.36
5.18
5.00
4.77
4.37
4.22
4.04
3.92
3.77
3.75
3.72
3.63
3.39
3.38
3.24
3.13
3.04
2.98
2.90
2.82
2.78
2.73
2.54
2.25
2.07
1.80
1.67
1.60
1.49
1.39
1.34
1.22
1.02
0.97
0.92
0.90
0.74
0.72
0.57
0.50
0.41
19.10
18.65
18.45
17.71
17.57
17.16
16.81
16.72
16.39
16.13
16.11
15.96
15.70
15.45
15.38
15.30
15.23
15.06
14.96
14.88
14.83
14.79
14.71
14.66
14.59
14.30
14.06
14.03
13.98
13.94
13.89
13.68
13.50
13.31
13.26
13.16
12.94
12.67
12.59
12.45

FULL ANALYSIS DATA

Identification	Column DB-5			Column DB-WAX		
	R.T	R.I	%	R.T	R.I	%
Dimethylsulfide	0.42	515	0.01	0.41	710	0.01
Isovaleral	0.66	642	0.03	0.74*	888	0.04
2-Methylbutyral	0.69	652	0.02	0.72	881	0.02
Valeral	0.82	693	0.01	1.02*	939	0.01
2-Ethylfuran	0.84	700	0.02	0.90	919	0.01
Isoamyl alcohol	1.06	730	0.07	3.39	1178	0.09
2-Methylbutanol	1.08	733	0.04	3.38	1177	0.04
Octene	1.51	791	0.01	0.57	819	0.01
Octane	1.60	803	0.01	0.50	790	0.01
5,5-Dimethyl-2-ethyl-1,3-cyclopentadiene?	2.06	840	tr	1.02*	939	[0.01]
7-Methyloctene	2.21	852	0.01	0.74*	888	[0.04]
(3*Z*)-Hexenol	2.24	855	0.36	5.72	1349	0.42
Hexanol	2.44	871	0.34	5.36	1323	0.37
3-Acetyl-3-methylcyclopentene	2.56	882	0.01	0.97	931	0.01
Nonene	2.71	894	0.01	0.92	923	0.01
Santolinatriene	2.94	911	0.10	1.49	1010	0.10
Hashishene	3.03	916	0.01	1.34*	994	1.19
Tricyclene	3.07	919	0.01	1.22	974	0.01
α-Thujene	3.18	926	0.26	1.39	1000	0.25
Artemisiatriene	3.23	930	0.01	1.80	1041	0.01
α-Pinene	3.26	931	1.21	1.34*	994	[1.19]
Unknown [m/z 122, 121 (36), 107 (33), 79 (27), 93 (25), 77 (25), 43 (20)]	3.30	935	0.02	3.78	1208	0.02
α-Fenchene	3.43†	943	0.16	1.60	1021	tr
Camphene	3.45†	944	[0.16]	1.67	1028	0.14
Thuja-2,4(10)-diene	3.55	951	0.01	2.25*	1087	10.55
Benzaldehyde	3.61	954	0.03	7.27	1462	0.02
Sabinene	3.89†	973	18.73	2.25*	1087	[10.55]
β-Pinene	3.91†	974	[18.73]	2.07	1069	8.14
Octen-3-ol	4.05	983	0.08	6.71*	1421	0.11
6-Methyl-5-hepten-2-one	4.11*	988	0.09	5.00	1296	0.05
Dehydro-1,8-cineole	4.11*	988	[0.09]	3.04	1151	0.01
2-Pentylfuran	4.20*	994	0.46	3.63	1197	0.05
Myrcene	4.20*	994	[0.46]	2.82	1133	0.40
Unknown [m/z 93, 91 (46), 80 (44), 79 (42), 77 (33), 92 (20)... 136 (4)]	4.25*	997	0.02	2.98	1146	0.02
Yomogi alcohol isomer	4.25*	997	[0.02]			
Pseudolimonene	4.30	1000	0.04	2.78	1130	0.03
α-Phellandrene	4.35*	1003	0.06	2.73	1126	0.06

Octanal	4.35*	1003	[0.06]	4.37	1251	0.01
Yomogi alcohol	4.38	1005	0.31	6.13	1378	0.30
Δ3-Carene	4.44	1009	0.01	2.54	1111	0.01
(3*Z*)-Hexenyl acetate	4.46	1010	0.03	4.77	1280	0.02
α-Terpinene	4.55	1016	0.54	2.90	1140	0.55
para-Cymene	4.67	1023	0.31	4.04	1226	0.31
1,8-Cineole	4.75*	1028	3.06	3.24*	1166	2.31
β-Phellandrene	4.75*	1028	[3.06]	3.24*	1166	[2.31]
Limonene	4.75*	1028	[3.06]	3.13	1158	0.73
(*Z*)-β-Ocimene	4.96	1041	0.17	3.72	1203	0.15
(*E*)-β-Ocimene	5.11	1051	0.38	3.92	1218	0.39
γ-Terpinene	5.24	1059	0.95	3.75	1206	0.95
Artemisia ketone	5.31	1063	3.35	5.18	1309	3.35
cis-Sabinene hydrate	5.36	1066	0.12	6.82	1429	0.15
cis-Linalool oxide (fur.)	5.45	1072	0.06	6.45	1402	0.08
Octanol	5.53	1077	0.02	8.09*	1525	0.27
Artemisia alcohol	5.68†	1086	0.42	7.44*	1475	0.14
trans-Linalool oxide (fur.)	5.70*†	1087	[0.42]	6.79	1426	0.02
Terpinolene	5.70*†	1087	[0.42]	4.22	1240	0.27
trans-Sabinene hydrate	5.85*	1097	0.11	7.88	1509	0.09
Filifolone	5.85*	1097	[0.11]	6.17	1381	0.02
Linalool	5.95	1104	2.90	7.99	1518	2.89
Nonanal	5.99	1106	0.11	5.79	1354	0.06
Unknown [m/z 81, 121 (95), 109 (71), 107 (60), 67 (56), 91 (53), 41 (49)... 152 (10)]	6.05	1110	0.01	6.67	1418	0.01
endo-Fenchol	6.09	1112	0.03	8.37*	1547	10.90
cis-para-Menth-2-en-1-ol	6.17	1117	0.03	8.03	1520	0.35
Chrysanthenone	6.22	1120	0.09	7.12*†	1452	[1.09]
α-Campholenal	6.26	1123	0.02	6.93	1437	0.01
4-Hydroxy-4-methylcyclohex-2-enone	6.34	1128	0.01	13.98	2030	0.02
Unknown [m/z 81, 41 (84), 69 (57), 79 (42), 80 (27), 135 (27), 91 (20), 53 (16)...]	6.39	1132	0.06	7.08*†	1449	1.09
trans-Pinocarveol	6.45	1135	0.11	9.10*	1604	0.13
trans-para-Menth-2-en-1-ol	6.50*	1138	0.52	8.88*	1586	0.07
Camphor	6.50*	1138	[0.52]	7.12*†	1452	[1.09]
Unknown [m/z 137, 67 (13), 95 (13), 81 (13)... 152 (6)]	6.67	1149	0.03	6.71*	1421	[0.11]

Nerol oxide	6.72*	1153	0.03	6.76	1424	0.01
Isoborneol	6.72*	1153	[0.03]	9.29*	1619	0.09
Pinocarvone	6.79	1157	0.15	7.83	1504	0.10
cis-Chrysanthenol	6.90	1164	0.29	10.34*	1705	0.65
Borneol	6.92	1165	0.42	9.72*†	1654	15.13
Isopinocamphone	6.98	1169	0.03	7.52	1482	0.03
Lavandulol	7.00	1170	0.36	9.54	1640	0.36
Artemisyl acetate	7.03	1172	0.02	6.28	1389	0.14
Terpinen-4-ol	7.10*	1177	4.60	8.50*	1557	4.63
Menthol	7.10*	1177	[4.60]	9.06*	1600	0.24
Thuj-3-en-10-al	7.17	1181	0.04	8.64	1567	0.06
para-Cymen-8-ol	7.21	1184	0.01	11.43	1798	0.01
Unknown [m/z 83, 55 (24), 41 (8), 84 (6), 69 (5)... 152 (1)]	7.24	1185	0.03	8.09*	1525	[0.27]
α-Terpineol	7.31*	1190	1.35	9.72*†	1654	[15.13]
Myrtenal	7.31*	1190	[1.35]	8.59	1564	0.07
Myrtenol	7.39*	1195	0.12	10.79	1743	0.07
Safranal	7.39*	1195	[0.12]	8.81*	1581	0.53
Unknown [m/z 95, 93 (32), 121 (24), 79 (22), 91 (21), 105 (16)... 154 (2)]	7.53	1204	0.02	10.84	1748	0.02
Decanal	7.58*	1207	0.10	7.21	1458	0.04
trans-Piperitol	7.58*	1207	[0.10]	10.31*	1702	0.18
Fragranol	7.63	1211	0.02	10.97	1758	0.03
β-Cyclocitral	7.72	1217	0.04	8.50*	1557	[4.63]
trans-Carveol	7.77	1220	0.04	11.32	1788	0.04
Nerol	7.92	1230	0.12	10.98	1760	0.12
trans-Chrysanthenyl acetate	7.96	1233	0.01	7.59	1486	0.02
Cuminal	8.00	1235	0.07	10.53*	1721	0.28
Carvone	8.04	1238	0.03	9.92	1670	0.04
Neral	8.07	1240	0.04	9.39	1628	0.09
Piperitone	8.22	1250	0.08	9.80*	1661	0.17
cis-Chrysanthenyl acetate	8.35†	1259	0.54	8.09*	1525	[0.27]
Geraniol	8.36†	1259	[0.54]	11.56	1809	0.29
Linalyl acetate	8.38	1261	0.03	8.09*	1525	[0.27]
Chavicol	8.43	1264	0.01	16.39	2269	0.03
Vitispirane ?	8.53	1271	0.07	7.44*	1475	[0.14]
4-Thujen-2α-yl acetate	8.61	1276	0.47	8.81*	1581	[0.53]
Bornyl acetate	8.73	1284	0.33	8.15	1530	0.34
trans-Chrysanthemyl acetate	8.80	1289	0.17	8.50*	1557	[4.63]
trans-Sabinyl acetate	8.84	1292	0.01	9.10*	1604	[0.13]
trans-Pinocarvyl acetate	8.88*	1294	0.33	9.02	1598	0.04
Lavandulyl acetate	8.88*	1294	[0.33]	8.69	1571	0.24

Thymol	8.94	1298	0.05	15.06	2134	0.06
Unknown [m/z 109, 43 (84), 134 (43), 41 (28), 151 (26), 91 (24)...]	8.99	1301	0.02	9.29*	1619	[0.09]
Carvacrol	9.11	1308	0.05	15.30*	2158	0.44
(2*E*,4*E*)-Decadienal	9.20	1314	0.02	11.08	1768	0.01
1,4-para-Menthadien-7-ol	9.38	1327	0.03	13.68*	2002	0.43
Bicycloelemene	9.51*	1336	0.14	6.98*	1441	0.04
δ-Elemene	9.51*	1336	[0.14]	6.89	1434	0.10
α-Terpinyl acetate	9.67*	1348	0.09	9.58	1643	0.04
α-Cubebene	9.67*	1348	[0.09]	6.71*	1421	[0.11]
Unknown [m/z 121, 93 (57), 43 (46), 79 (18), 136 (17)...]	9.77	1354	0.03			
Eugenol	9.81	1357	0.01	14.71	2099	0.19
Neryl acetate	9.93	1365	0.06	10.10	1685	0.07
α-Ylangene	9.96	1368	0.02	6.98*	1441	[0.04]
α-Copaene	10.03	1373	0.66	7.08*†	1449	[1.09]
Daucene	10.07	1376	0.02	7.12*†	1452	[1.09]
β-Bourbonene	10.14*	1381	0.49	7.41	1473	0.46
cis-β-Elemene	10.14*	1381	[0.49]	8.24	1536	0.02
Lavandulyl propionate	10.17	1383	0.03			
Geranyl acetate	10.20	1385	0.05	10.46	1716	0.05
Dehydroionene analog	10.24	1387	0.13			
β-Elemene	10.27	1390	0.09	8.37*	1547	[10.90]
(*Z*)-Jasmone	10.32	1393	0.05	12.32*	1876	0.08
Isocaryophyllene	10.45	1402	0.11	8.09*	1525	[0.27]
α-Gurjunene	10.47	1404	0.04	7.54	1482	0.02
β-Caryophyllene	10.63	1416	10.89	8.37*	1547	[10.90]
β-Copaene	10.75	1425	0.15	8.37*	1547	[10.90]
trans-α-Bergamotene	10.88	1435	0.11	8.37*	1547	[10.90]
Isogermacrene D	10.95	1440	0.06	8.88*	1586	[0.07]
Sesquisabinene A	10.98*	1442	0.22	9.06*	1600	[0.24]
α-Himachalene	10.98*	1442	[0.22]	8.85	1584	0.02
α-Humulene	11.07	1449	1.42	9.20	1612	1.38
allo-Aromadendrene	11.13	1453	0.03	8.92	1590	0.13
cis-Muurola-4(15),5-diene	11.17	1456	0.08	9.25	1616	0.04
(*E*)-β-Farnesene	11.22	1460	1.04	9.48	1634	1.02
trans-Cadina-1(6),4-diene	11.33	1468	0.03	9.15	1608	0.03
γ-Muurolene	11.40	1473	0.04	9.52	1638	0.18
Germacrene D	11.48†	1479	14.15	9.73†	1655	[15.13]
β-Selinene	11.52*†	1482	[14.15]	9.80*	1661	[0.17]
ar-Curcumene	11.52*†	1482	[14.15]	10.57*	1725	0.17
(*E*)-β-Ionone	11.58	1487	0.04	12.32*	1876	[0.08]

Bicyclogermacrene	11.66*	1492	0.96	9.98	1675	0.98
α-Selinene	11.66*	1492	[0.96]	9.86	1666	0.05
α-Muurolene	11.70	1495	0.57	10.00	1677	0.53
(3*Z*,6*E*)-α-Farnesene	11.72*	1497	0.21	10.18	1692	0.16
Germacrene A	11.72*	1497	[0.21]	10.31*	1702	[0.18]
Lavandulyl isovalerate	11.85	1507	0.03	10.57*	1725	[0.17]
(3*E*,6*E*)-α-Farnesene	11.89*	1510	0.55	10.42	1712	0.44
β-Bisabolene	11.89*	1510	[0.55]	10.07	1682	0.06
β-Curcumene	11.89*	1510	[0.55]	10.11	1686	0.04
γ-Cadinene	11.89*	1510	[0.55]	10.31*	1702	[0.18]
Cubebol	11.89*	1510	[0.55]	12.45	1888	0.05
(2*E*?,8*Z*?)-Matricaria ester	11.94	1514	0.04	14.88	2117	0.05
Sesquicineole	11.98	1517	0.02	10.22	1695	0.06
δ-Cadinene	12.03†	1521	0.87	10.34*	1705	[0.65]
β-Sesquiphellandrene	12.05*†	1523	[0.87]	10.53*	1721	[0.28]
(2*Z*?,8*Z*?)-Matricaria ester	12.05*†	1523	[0.87]	16.13	2243	0.10
trans-Cadina-1,4-diene	12.10	1527	0.01	10.57*	1725	[0.17]
α-Cadinene	12.20	1534	0.02	10.70	1736	0.04
Isocaryophyllene epoxide B	12.35*	1546	0.10	12.02	1850	0.07
α-Elemol	12.35*	1546	[0.10]	13.94	2026	0.06
Unknown [m/z 138, 96 (100), 95 (85), 109 (74), 110 (60), 105 (57)... 220 (10)]	12.45	1554	0.02	12.20	1866	0.01
Palustrol	12.52	1560	0.03	12.18	1864	0.02
(*E*)-Nerolidol	12.59	1564	0.39	13.68*	2002	[0.43]
Spathulenol	12.68*	1572	0.19	14.30	2060	0.15
Unknown [m/z 43, 149 (86), 133 (60), 93 (55), 81 (54)...]	12.68*	1572	[0.19]	13.31	1968	0.03
Caryophyllene oxide	12.73*	1576	1.95	12.67	1910	1.79
Caryophyllene oxide isomer	12.73*	1576	[1.95]	12.59	1902	0.14
Unknown [m/z 109, 43 (95), 81 (81), 93 (76), 69 (75), 95 (74), 107 (71)... 204 (22), 220 (6)]	12.75	1578	0.05			
Viridiflorol	12.86*	1586	0.10	13.89	2022	0.03
Salvial-4(14)-en-1-one	12.86*	1586	[0.10]	12.94	1934	0.07
Copaborneol	12.99	1596	0.02	14.79*	2108	0.06
Fokienol	13.02	1599	0.03	14.96*	2124	0.08
Humulene epoxide II	13.06	1601	0.14	13.26	1963	0.12
Junenol	13.16	1610	0.07	13.50	1984	0.18

10-epi-γ-Eudesmol	13.20	1613	0.05	14.03	2035	0.04
1-epi-Cubenol	13.29	1621	0.07	13.68*	2002	[0.43]
Caryophylladienol I	13.33*	1624	0.14	15.96*	2225	0.14
cis-Cadin-4-en-7-ol	13.33*	1624	[0.14]	14.06	2037	0.04
γ-Eudesmol	13.36	1626	0.09	14.83	2111	0.08
Caryophylladienol II	13.41	1630	0.10	15.96*	2225	[0.14]
τ-Cadinol	13.50*	1638	0.14	14.79*	2108	[0.06]
τ-Muurolol	13.50*	1638	[0.14]	14.96*	2124	[0.08]
β-Eudesmol	13.57	1644	0.41	15.30*	2158	[0.44]
α-Eudesmol	13.62	1647	0.09	15.23	2151	0.03
α-Cadinol	13.65	1650	0.29	15.38	2166	0.16
trans-Calamenen-10-ol	13.75	1659	0.13	16.72*	2304	0.19
Unknown [m/z 147, 162 (74), 105 (68), 119 (53), 59 (51), 91 (48)...222 (1)]	13.78	1661	0.02	15.44	2172	0.03
Unknown [m/z 205, 93 (93), 43 (58), 79 (510, 91 (48), 119 (45)... 220 (3)]	13.86*	1667	0.39	16.11	2240	0.33
(3*Z*)-Caryophylla-3,8(13)-dien-5β-ol	13.86*	1667	[0.39]	16.72*	2304	[0.19]
Eudesma-4(15),7-dien-1β-ol	13.97	1677	0.14			
Germacra-4(15),5,10(14)-trien-1α-ol	14.01	1680	0.07			
α-Bisabolol	14.04	1682	0.07	15.30*	2158	[0.44]
Unknown [m/z 43, 108 (62), 93 (51), 41 (42), 109 (37), 69 (36)...]	14.11	1688	0.10	16.63*	2295	10.10
Unknown [m/z 133, 93 (97), 131 (85), 145 (83), 107 (69)...220]	14.24	1699	0.08	16.81	2314	0.03
Pentadecanal?	14.40	1712	0.01	13.16	1954	0.02
Chamazulene	14.52	1723	10.00	16.63*	2295	[10.10]
Unknown [m/z 85, 68 (39), 93 (36), 83 (21), 43 (20), 67 (19)...220 (1)]	14.63	1732	0.02	18.65	2518	0.02
Unknown [m/z 43, 41 (57), 55 (50), 165 (49), 95 (47)...]	14.71	1739	0.11			
Unknown [m/z 107, 93 (54), 105 (54), 91 (53), 119 (53), 109 (39)...220 (13)]	14.78	1745	0.03	17.16	2352	0.05
Unknown [m/z 119, 93 (88), 91 (68), 79	14.86	1752	0.03	17.71	2412	0.01

(65), 43 (52), 107 (49)...220 (2)]						
Unknown [m/z 43, 93 (82), 133 (63), 91 (59), 79 (51), 105 (49)...]	15.34	1794	0.05	15.70	2198	0.07
Phytone	15.93	1846	0.22	14.59	2088	0.23
Palmitic acid	17.25	1968	0.21			
Heneicosane	18.65	2105	0.02	14.66	2094	0.03
Phytol	18.72	2112	0.47	19.10	2571	0.40
Achilleamide?	18.98	2139	0.06			
trans-Geranylgeraniol	19.44	2186	0.03			
Unknown [m/z 95, 81 (69), 55 (50), 93 (43), 69 (39), 107 (39)...]	19.73	2216	0.14			
Tricosane	20.53	2302	0.06	16.63*	2295	[10.10]
Tetracosane	21.43	2402	0.03	17.56	2396	0.01
Pentacosane	22.28	2500	0.08	18.45	2494	0.07
Total identified		**95.90%**			**93.75%**	
Total reported		**96.75%**			**94.39%**	

*: Two or more compounds are coeluting on this column
[xx]: Duplicate percentage due to coelutions, not 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