

Date : November 11, 2019

CERTIFICATE OF ANALYSIS – GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 19K04-PTH07-1-CC

Customer identification : Frankincense Carteri - Somaliland - F3010892R

Type : Essential oil

Source : *Boswellia carteri*

Customer : Plant Therapy

ANALYSIS

Method: PC-MAT-007 - Analysis of the composition of an essential oil or other volatile liquide by FAST GC-FID (in French); identifications validated by GC-MS.

Analyst : Benoit Roger, Ph. D.

Analysis date : November 07, 2019

Checked and approved by :

Alexis St-Gelais, M. Sc., chimiste 2013-174

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PHYSICOCHEMICAL DATA

Physical aspect: Faintly yellow liquid

Refractive index: 1.4743 ± 0.0003 (20 °C)

CONCLUSION

No adulterant or diluent has been detected using this method. The presence of methyl decyl ether has been suggested as indicative of codistillation of *Boswellia carteri* and *Boswellia occulta*¹. The latter was only very recently proposed as a new species² with a distinct chemistry³. It is expected that it takes some time to fully validate the said findings through additional studies. PhytoChemia does not rule out alternative hypotheses to explain this sample's composition, such as a chemotype of *B. carteri*.

REFERENCES

- (1) Johnson, S.; DeCarlo, A.; Satyal, P.; Dosoky, N.; Sorensen, A.; Setzer, W. Organic Certification Is Not Enough: The Case of the Methoxydecane Frankincense. *Plants* **2019**, *8* (4), 88. <https://doi.org/10.3390/plants8040088>.
- (2) Thulin, M.; DeCarlo, A.; Johnson, S. P. *Boswellia Occulta* (Burseraceae), a New Species of Frankincense Tree from Somalia (Somaliland). *Phytotaxa* **2019**, *394* (3), 219. <https://doi.org/10.11646/phytotaxa.394.3.3>.
- (3) Johnson, S.; DeCarlo, A.; Satyal, P.; Dosoky, N. S.; Sorensen, A.; Setzer, W. N. The Chemical Composition of *Boswellia Occulta* Oleogum Resin Essential Oils. *Nat. Prod. Commun.* **2019**, *14* (7), 1934578X1986630. <https://doi.org/10.1177/1934578X19866307>.

ANALYSIS SUMMARY – CONSOLIDATED CONTENTS

New readers of similar reports are encouraged to read table footnotes at least once.

Identification	%	Classe
2-Methyl-3-buten-2-ol	tr	Aliphatic alcohol
3-Methyl-2-butanone	tr	Aliphatic ketone
Toluene	0.04	Simple phenolic
Unknown	0.01	Alkene
Unknown	0.01	Unknown
Hashishene	0.20	Monoterpene
Tricyclene	0.03	Monoterpene
α -Thujene	8.05	Monoterpene
α -Pinene	31.99	Monoterpene
Unknown	0.05	Monoterpene
Camphene	0.33	Monoterpene
α -Fenchene	0.02	Monoterpene
Thuja-2,4(10)-diene	0.16	Monoterpene
meta-Cymene	0.04	Monoterpene
Sabinene	5.07	Monoterpene
β -Pinene	3.14	Monoterpene
Pseudolimonene isomer	0.05	Monoterpene
6-Methyl-5-hepten-2-one	0.01	Aliphatic ketone
Dehydro-1,8-cineole	0.03	Monoterpenic ether
Myrcene	3.74	Monoterpene
6-Methyl-5-hepten-2-ol	0.03	Aliphatic alcohol
α -Phellandrene	1.82	Monoterpene
Pseudolimonene	0.27	Monoterpene
Octanal	0.01	Aliphatic aldehyde
Δ^3 -Carene	1.31	Monoterpene
ortho-Methylanisole	0.01	Simple phenolic
α -Terpinene	0.40	Monoterpene
ortho-Cymene	0.02	Monoterpene
para-Cymene	4.14	Monoterpene
β -Phellandrene	0.69*	Monoterpene
1,8-Cineole	[0.69]*	Monoterpenic ether
Limonene	14.42	Monoterpene
Cymene analog	0.02	Monoterpene
(Z)- β -Ocimene	0.39	Monoterpene
Unknown	0.01	Unknown
(E)- β -Ocimene	0.14	Monoterpene
γ -Terpinene	0.73	Monoterpene
cis-Sabinene hydrate	0.01	Monoterpenic alcohol
Unknown	0.07	Oxygenated monoterpene
Octanol	0.03	Aliphatic alcohol
Terpinolene	0.13	Monoterpene
para-Cymenene	0.08	Monoterpene
6,7-Epoxyterpinene	0.01	Monoterpenic ether
α -Thujone	0.01	Monoterpenic ketone
Linalool	0.10	Monoterpenic alcohol
Perillene	0.04	Monoterpenic ether
Unknown	0.01	Monoterpenic alcohol

Verbenol analog?	0.02	Monoterpenic alcohol
β -Thujone	0.05	Monoterpenic ketone
<i>cis</i> -para-Menth-2-en-1-ol	0.03	Monoterpenic alcohol
α -Campholenal	0.07	Monoterpenic aldehyde
Myrcenol	0.03	Monoterpenic alcohol
Unknown	0.03	Unknown
<i>cis</i> -Limonene oxide	0.01	Monoterpenic ether
allo-Ocimene	0.02	Monoterpene
<i>trans</i> -Pinocarveol	0.24	Monoterpenic alcohol
<i>trans</i> -Limonene oxide	0.03	Monoterpenic ether
<i>trans</i> -Sabinol	0.01	Monoterpenic alcohol
<i>cis</i> -Verbenol	0.02	Monoterpenic alcohol
<i>trans</i> -Verbenol	0.08	Monoterpenic alcohol
meta-Mentha-4,6-dien-8-ol	0.13	Monoterpenic alcohol
Unknown	0.02	Oxygenated monoterpene
Pinocamphone	0.03	Monoterpenic ketone
Pinocarvone	0.01	Monoterpenic ketone
Unknown	0.02	Oxygenated monoterpene
Borneol	0.05	Monoterpenic alcohol
α -Phellandren-8-ol	0.31	Monoterpenic alcohol
Umbellulone	0.02	Monoterpenic ketone
<i>cis</i> -Sabinol	0.08	Monoterpenic alcohol
Terpinen-4-ol	0.76	Monoterpenic alcohol
Thuj-3-en-10-al	0.03	Monoterpenic aldehyde
para-Cymen-8-ol	0.08	Monoterpenic alcohol
α -Terpineol	0.20	Monoterpenic alcohol
Myrtenal	0.12	Monoterpenic aldehyde
Methylchavicol	0.02	Phenylpropanoid
Myrtenol	0.04	Monoterpenic alcohol
<i>trans</i> -Isopiperitenol	0.08	Monoterpenic alcohol
α -Phellandrene epoxide	0.12	Monoterpenic ether
Verbenone	0.22	Monoterpenic ketone
<i>trans</i> -Piperitol	0.03	Monoterpenic alcohol
Octyl acetate	0.19	Aliphatic ester
<i>trans</i> -Carveol	0.11	Monoterpenic alcohol
<i>cis</i> -Carveol	0.05	Monoterpenic alcohol
Cuminal	0.05	Monoterpenic aldehyde
Methyl decyl ether	0.62	Aliphatic ether
Hexyl 2-methylbutyrate	0.01	Aliphatic ester
Carvone	0.07	Monoterpenic ketone
Carvotanacetone	0.06	Monoterpenic ketone
Piperitone	0.01	Monoterpenic ketone
3,5-Dimethoxytoluene	0.01	Simple phenolic
Unknown	0.07	Oxygenated monoterpene
Decanol	0.06	Aliphatic alcohol
Bornyl acetate	0.21	Monoterpenic ester
Thymol	0.02	Monoterpenic alcohol
Bicycloelemene	0.04	Sesquiterpene
α -Cubebene	0.18	Sesquiterpene
Cyclosativene II	0.02	Sesquiterpene
α -Copaene	0.67	Sesquiterpene
β -Bourbonene	0.26	Sesquiterpene

1,5-diepi- β -Bourbonene	0.03	Sesquiterpene
β -Cubebene	0.04	Sesquiterpene
β -Elemene	0.54	Sesquiterpene
α -Gurjunene	0.09	Sesquiterpene
β -Caryophyllene	3.73	Sesquiterpene
β -Copaene	0.06	Sesquiterpene
<i>trans</i> - α -Bergamotene	0.14	Sesquiterpene
6,9-Guaiadiene	0.12	Sesquiterpene
<i>trans</i> -Muuro-la-3,5-diene	0.11	Sesquiterpene
α -Humulene	0.72	Sesquiterpene
allo-Aromadendrene	0.14	Sesquiterpene
<i>cis</i> -Muuro-la-4(15),5-diene	0.05	Sesquiterpene
<i>trans</i> -Cadina-1(6),4-diene	0.16	Sesquiterpene
γ -Muuro-lene	0.27	Sesquiterpene
Germacrene D	0.16	Sesquiterpene
β -Selinene	0.27	Sesquiterpene
<i>trans</i> -Muuro-la-4(15),5-diene	0.05	Sesquiterpene
δ -Selinene	0.12	Sesquiterpene
α -Selinene	0.26	Sesquiterpene
epi-Cubebol	0.03	Sesquiterpenic alcohol
Viridiflorene	0.29	Sesquiterpene
α -Muuro-lene	0.19	Sesquiterpene
δ -Amorphene	0.05	Sesquiterpene
Cubebol	0.03	Sesquiterpenic alcohol
γ -Cadinene	0.29	Sesquiterpene
<i>trans</i> -Calamenene	0.03	Sesquiterpene
δ -Cadinene	1.06	Sesquiterpene
<i>trans</i> -Cadina-1,4-diene	0.10	Sesquiterpene
α -Cadinene	0.04	Sesquiterpene
α -Calacorene	0.04	Sesquiterpene
α -Elemol	0.11	Sesquiterpenic alcohol
Germacrene B	0.08	Sesquiterpene
Unknown	0.03	Oxygenated sesquiterpene
Germacrene D-4-ol	0.05	Sesquiterpenic alcohol
Caryophyllene oxide	0.23	Sesquiterpenic ether
Caryophyllene oxide isomer	0.02	Sesquiterpenic ether
Spathulenol	0.06	Sesquiterpenic alcohol
Viridiflorol	1.14	Sesquiterpenic alcohol
Copaborneol	0.15	Sesquiterpenic alcohol
Humulene epoxide II	0.05	Sesquiterpenic ether
10-epi-Cubenol	0.16	Sesquiterpenic alcohol
Unknown	0.20	Sesquiterpenic alcohol
1-epi-Cubenol	0.11	Sesquiterpenic alcohol
τ -Cadinol	0.38	Sesquiterpenic alcohol
τ -Muuro-lol	0.04	Sesquiterpenic alcohol
α -Muuro-lol	0.06	Sesquiterpenic alcohol
β -Eudesmol	0.05	Sesquiterpenic alcohol
α -Eudesmol	0.05	Sesquiterpenic alcohol
α -Cadinol	0.06	Sesquiterpenic alcohol
(3Z)-Caryophylla-3,8(13)-dien-5 β -ol	0.07	Sesquiterpenic alcohol
Shyobunol	0.01	Sesquiterpenic alcohol
α -Phellandrene dimer II	0.14	Diterpene

α -Phellandrene dimer III	0.03	Diterpene
(3E)-Cembrene A	0.28	Diterpene
Cembrene C	0.07	Diterpene
Verticilla-4(20),7,11-triene	0.06	Diterpene
Cembrenol	0.15	Diterpenic alcohol
Serratol	1.06	Diterpenic alcohol
Incensole	0.29	Diterpenic alcohol
Incensyl acetate	0.09	Diterpenic ester
Consolidated total	98.06%	

*: 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

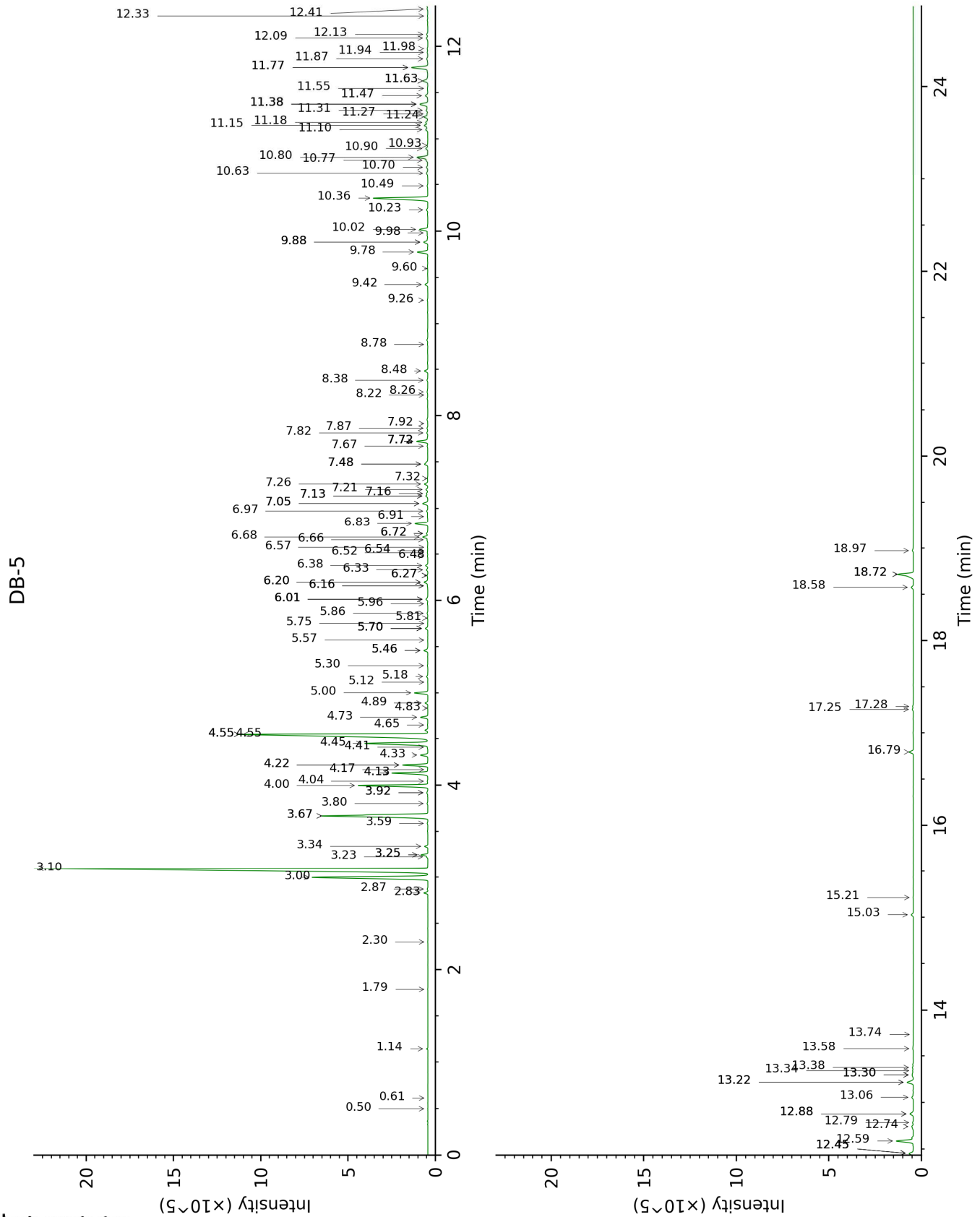
tr: The compound has been detected below 0.005% of total signal.

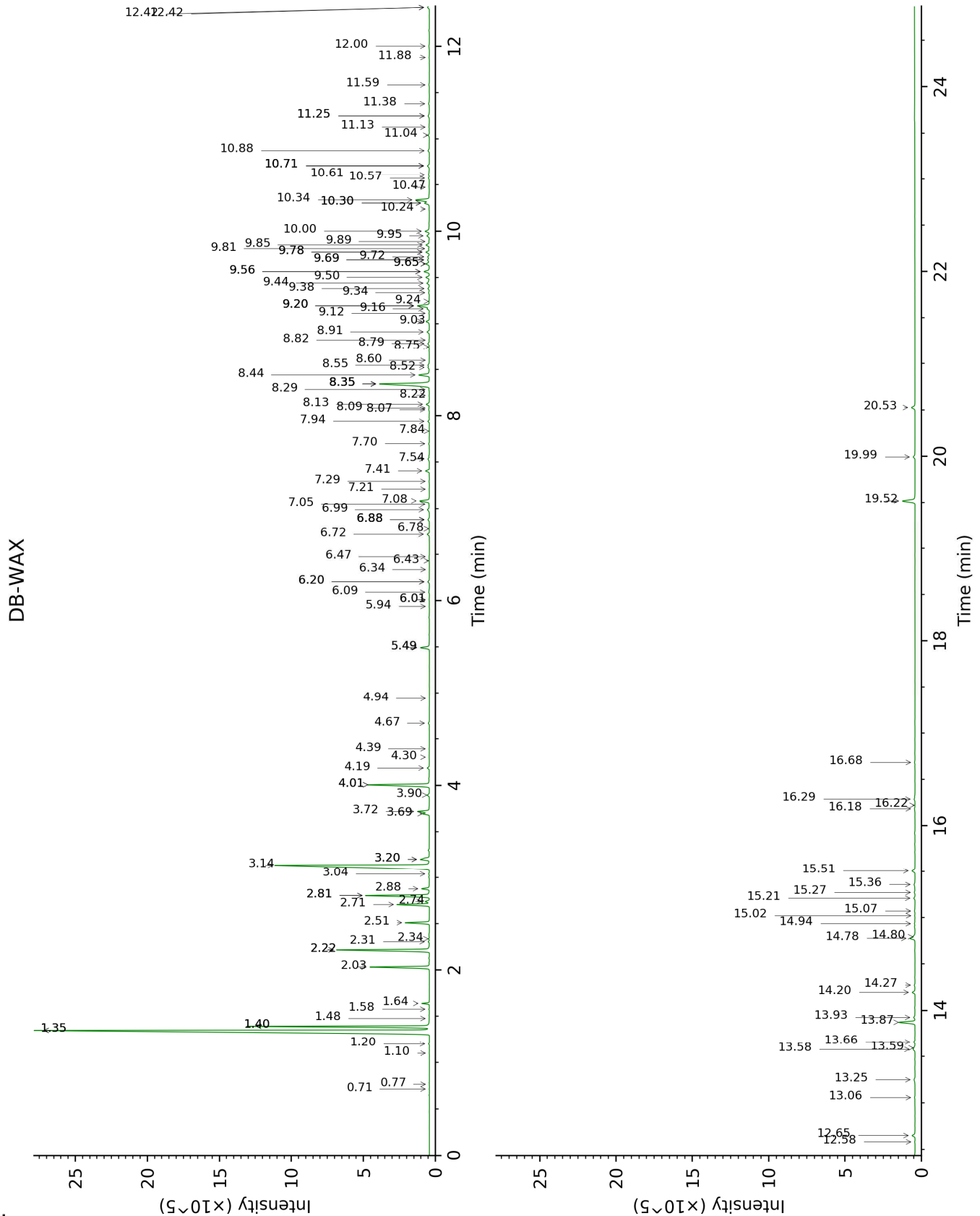
Note: no correction factor was applied

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.

This page was intentionally left blank. The following pages present the complete data of the analysis.





FULL ANALYSIS DATA

Identification	Column DB-5			Column DB-WAX		
	R.T	R.I	%	R.T	R.I	%
2-Methyl-3-buten-2-ol	0.50	593	tr	1.48	1012	tr
3-Methyl-2-butanone	0.61	648	tr	0.76	900	tr
Toluene	1.14	760	0.04	1.40*	1004	8.38
Unknown [m/z 109, 67 (32), 81 (14), 41 (12), 124 (10)]	1.79	832	0.01	0.71	883	0.01
Unknown [m/z 79, 78 (45), 91 (28), 77 (28), 41 (13), 80 (12), 107 (11)... 122 (1)]	2.30	874	0.01	1.10	957	0.01
Hashishene	2.83	915	0.20	1.35*	997	32.52
Tricyclene	2.87	918	0.03	1.20	973	0.04
α -Thujene	3.00	926	8.05	1.40*	1004	[8.38]
α -Pinene	3.10	932	31.99	1.35*	997	[32.52]
Unknown [m/z 91, 92 (47), 65 (11)... 134 (1)]	3.23	941	0.05	2.31	1093	0.06
Camphene	3.25*	942	0.35	1.64	1028	0.33
α -Fenchene	3.25*	942	[0.35]	1.58	1022	0.02
Thuja-2,4(10)-diene	3.34	948	0.16	2.22*	1085	5.36
meta-Cymene	3.59	965	0.04	2.81*	1134	3.78
Sabinene	3.67*	970	8.21	2.22*	1085	[5.36]
β -Pinene	3.67*	970	[8.21]	2.03	1066	3.14
Pseudolimonene isomer	3.80	979	0.05	2.34	1096	0.04
6-Methyl-5-hepten-2-one	3.92*	987	0.08	4.94	1298	0.01
Dehydro-1,8-cineole	3.92*	987	[0.08]	3.04	1153	0.03
Myrcene	4.00	992	3.74	2.81*	1134	[3.78]
6-Methyl-5-hepten-2-ol	4.04	995	0.03	6.88*	1434	0.12
α -Phellandrene	4.13*	1001	2.01	2.71	1127	1.82
Pseudolimonene	4.13*	1001	[2.01]	2.74	1129	0.27
Octanal	4.17	1003	0.01	4.30	1250	0.01
Δ 3-Carene	4.22*	1006	1.33	2.51	1112	1.31
ortho-Methylanisole	4.22*	1006	[1.33]	5.94	1364	0.01
α -Terpinene	4.32	1013	0.40	2.88	1140	0.46
ortho-Cymene	4.41	1018	0.02	4.01*	1228	4.04
para-Cymene	4.45	1021	4.14	4.01*	1228	[4.04]
β -Phellandrene	4.55*†	1027	15.11	3.20*	1166	0.74
1,8-Cineole	4.55*†	1027	[15.11]	3.20*	1166	[0.74]

Limonene	4.55*†	1027	[15.11]	3.14	1161	14.42
Cymene analog	4.65	1034	0.02	4.40	1257	0.01
(Z)-β-Ocimene	4.73	1039	0.39	3.70	1205	0.37
Unknown [m/z 109, 43 (57), 91 (28), 67 (25), 93 (24), 95 (22), 77 (21), 137 (21), 41 (17), 79 (14)...]	4.83	1045	0.01			
(E)-β-Ocimene	4.89	1049	0.14	3.90	1220	0.14
γ-Terpinene	5.00	1056	0.73	3.72	1207	0.77
cis-Sabinene hydrate	5.12	1064	0.01	6.78	1426	0.02
Unknown [m/z 79, 93 (60), 43 (40), 94 (35), 137 (33), 77 (26), 91 (20), 152 (18)]	5.18	1067	0.07	4.67	1278	0.08
Octanol	5.30	1075	0.03	8.09	1525	0.02
Terpinolene	5.46*	1085	0.25	4.19	1242	0.13
para-Cymenene	5.46*	1085	[0.25]	6.20*	1383	0.12
6,7-Epoxymyrcene	5.57	1092	0.01	6.01*	1369	0.02
α-Thujone	5.70*	1100	0.15	6.01*	1369	[0.02]
Linalool	5.70*	1100	[0.15]	7.94	1514	0.10
Perillene	5.70*	1100	[0.15]	6.09	1375	0.04
Unknown [m/z 119, 109 (94), 43 (61), 95 (56), 91 (48), 77 (32), 152 (32), 137 (31), 134 (24)]	5.75	1104	0.01	8.35*	1546	4.24
Verbenol analog?	5.81	1108	0.02	8.22	1536	0.02
β-Thujone	5.86	1111	0.05	6.20*	1383	[0.12]
cis-para-Menth-2-en-1-ol	5.96	1118	0.03	8.07	1524	0.05
α-Campholenal	6.01*	1121	0.13	6.88*	1434	[0.12]
Myrcenol	6.01*	1121	[0.13]	8.75	1577	0.03
Unknown [m/z 111, 43 (22), 55 (14), 41 (12), 110 (11)...]	6.01*	1121	[0.13]			
cis-Limonene oxide	6.16*	1130	0.03	6.34	1393	0.01
allo-Ocimene	6.16*	1130	[0.03]	5.49*	1331	0.62
trans-Pinocarveol	6.20*	1133	0.27	9.03	1599	0.24
trans-Limonene oxide	6.20*	1133	[0.27]	6.48	1403	0.03
trans-Sabinol	6.27*	1138	0.05	9.69*	1653	0.17
cis-Verbenol	6.27*	1138	[0.05]	9.12	1606	0.02
trans-Verbenol	6.33	1142	0.08	9.38	1628	0.11
meta-Mentha-4,6-dien-8-ol	6.38	1145	0.13	9.16	1610	0.14

Unknown [m/z 109, 81 (39), 41 (38), 95 (24)... 152 (1)]	6.48	1152	0.02			
Pinocamphone	6.52	1154	0.03	7.21	1458	0.01
Pinocarvone	6.54	1155	0.01	7.84	1506	0.01
Unknown [m/z 109, 43 (75), 137 (46), 67 (31), 93 (25)... 152 (4)]	6.57	1158	0.02			
Borneol	6.66	1163	0.05	9.65*	1650	0.26
α -Phellandren-8-ol	6.68	1165	0.31	10.00	1679	0.36
Umbellulone	6.72*	1168	0.10	8.82	1583	0.02
<i>cis</i> -Sabinol	6.72*	1168	[0.10]	10.71*	1738	0.16
Terpinen-4-ol	6.83	1175	0.76	8.44	1553	0.77
Thuj-3-en-10-al	6.91	1180	0.03	8.60	1566	0.02
<i>para</i> -Cymen-8-ol	6.97	1184	0.08	11.38	1796	0.07
α -Terpineol	7.05*	1189	0.35	9.65*	1650	[0.26]
Myrtenal	7.05*	1189	[0.35]	8.55	1562	0.12
Methylchavicol	7.14*	1195	0.13	9.20*	1613	0.90
Myrtenol	7.14*	1195	[0.13]	10.71*	1738	[0.16]
<i>trans</i> - Isopiperitenol	7.16	1197	0.08	10.30*	1704	0.37
α -Phellandrene epoxide	7.20	1199	0.12	10.88	1752	0.12
Verbenone	7.26	1203	0.22	9.44	1633	0.18
<i>trans</i> -Piperitol	7.32	1207	0.03	10.24	1698	0.02
Octyl acetate	7.48*	1218	0.30	6.99	1442	0.19
<i>trans</i> -Carveol	7.48*	1218	[0.30]	11.25*	1785	0.13
<i>cis</i> -Carveol	7.67	1232	0.05	11.59	1814	0.05
Cuminal	7.72*	1235	0.68	10.48	1718	0.05
Methyl decyl ether	7.72*	1235	[0.68]	5.49*	1331	[0.62]
Hexyl 2- methylbutyrate	7.72*	1235	[0.68]	6.43	1400	0.01
Carvone	7.82	1242	0.07	9.89	1670	0.04
Carvotanacetone	7.87	1245	0.06	9.34	1624	0.06
Piperitone	7.92	1249	0.01	9.78*	1660	0.25
3,5- Dimethoxytoluene	8.22	1264	0.01	11.25*	1785	[0.13]
Unknown [m/z 109, 41 (22), 81 (14), 43 (11)... 152 (4)]	8.26	1267	0.07			
Decanol	8.38	1275	0.06	10.58	1727	0.07
Bornyl acetate	8.48	1282	0.21	8.13	1528	0.22
Thymol	8.78	1302	0.02	15.02	2135	0.02
Bicycloelemene	9.26	1336	0.04	7.05	1446	0.03
α -Cubebene	9.42	1348	0.18	6.72	1421	0.15
Cyclosativene II	9.60	1360	0.02	6.88*	1434	[0.12]
α -Copaene	9.78	1372	0.67	7.08	1449	0.69
β -Bourbonene	9.88*	1380	0.32	7.41	1473	0.26
1,5-diepi- β -	9.88*	1380	[0.32]	7.30	1465	0.03

Bourbonene						
β-Cubebene	9.98	1387	0.04	7.70	1495	0.05
β-Elemene	10.02	1390	0.54	8.35*	1546	[4.24]
α-Gurjunene	10.23	1405	0.09	7.54	1483	0.13
β-Caryophyllene	10.36	1414	3.73	8.35*	1546	[4.24]
β-Copaene	10.49	1424	0.06	8.29	1541	0.03
<i>trans</i> -α-Bergamotene	10.63	1435	0.14	8.35*	1546	[4.24]
6,9-Guaiadiene	10.70	1440	0.12	8.52	1560	0.10
<i>trans</i> -Muuroala-3,5-diene	10.77	1445	0.11	8.79	1580	0.11
α-Humulene	10.80	1448	0.72	9.20*	1613	[0.90]
allo-Aromadendrene	10.90	1455	0.14	8.91	1590	0.17
<i>cis</i> -Muuroala-4(15),5-diene	10.93	1457	0.05	9.24	1616	0.03
<i>trans</i> -Cadina-1(6),4-diene	11.10	1470	0.16	9.20*	1613	[0.90]
γ-Muurolene	11.15	1474	0.27	9.50	1638	0.25
Germacrene D	11.18	1476	0.16	9.69*	1653	[0.17]
β-Selinene	11.24	1480	0.27	9.78*	1660	[0.25]
<i>trans</i> -Muuroala-4(15),5-diene	11.27	1483	0.05	9.72	1656	0.13
δ-Selinene	11.31	1486	0.12	9.56*	1643	0.41
α-Selinene	11.38*	1491	0.64	9.85	1666	0.26
epi-Cubebol	11.38*	1491	[0.64]	11.88	1840	0.03
Viridiflorene	11.38*	1491	[0.64]	9.56*	1643	[0.41]
α-Muurolene	11.47	1498	0.19	9.95	1675	0.19
δ-Amorphene	11.55	1504	0.05	9.81	1663	0.06
Cubebol	11.63*	1510	0.41	12.42*	1888	0.17
γ-Cadinene	11.63*	1510	[0.41]	10.30*	1704	[0.37]
<i>trans</i> -Calamenene	11.77*	1521	1.14	11.13	1774	0.03
δ-Cadinene	11.77*	1521	[1.14]	10.34	1706	1.06
<i>trans</i> -Cadina-1,4-diene	11.87	1528	0.10	10.61	1730	0.11
α-Cadinene	11.94	1534	0.04	10.71*	1738	[0.16]
α-Calacorene	11.98	1537	0.04	12.00	1851	0.06
α-Elemol	12.09	1546	0.11	13.92	2028	0.10
Germacrene B	12.13	1549	0.08	11.04	1767	0.08
Unknown [m/z 152, 109 (61), 43 (21), 137 (16), 151 (16)... 222 (6)]	12.33	1565	0.03			
Germacrene D-4-ol	12.41	1571	0.05	13.59	1996	0.06
Caryophyllene oxide	12.45*	1575	0.33	12.65	1909	0.23
Caryophyllene oxide isomer	12.45*	1575	[0.33]	12.58	1902	0.02
Spathulenol	12.45*	1575	[0.33]	14.27	2062	0.06
Viridiflorol	12.59	1585	1.14	13.87	2023	1.07
Copaborneol	12.74	1598	0.15	14.80	2112	0.11

Humulene epoxide II	12.79	1601	0.05	13.25	1964	0.12
10-epi-Cubenol	12.88*	1608	0.28	13.58	1995	0.16
Unknown [m/z 161, 189 (76), 204 (66), 105 (60), 119 (46), 107 (41), 59 (38)...222 (3)]	12.88*	1608	[0.28]	14.20	2054	0.20
1-epi-Cubenol	13.06	1623	0.11	13.66	2002	0.09
τ-Cadinol	13.22*	1636	0.48	14.78	2111	0.38
τ-Muurolol	13.22*	1636	[0.48]	14.94	2127	0.04
α-Muurolol	13.30*	1643	0.14	15.07	2140	0.06
β-Eudesmol	13.30*	1643	[0.14]	15.27	2161	0.05
α-Eudesmol	13.34	1647	0.05	15.21	2154	0.08
α-Cadinol	13.38	1650	0.06	15.36	2169	0.13
(3Z)-Caryophylla-3,8(13)-dien-5β-ol	13.58	1666	0.07	16.68	2306	0.04
Shyobunol	13.74	1680	0.01	16.22	2257	0.01
α-Phellandrene dimer II	15.03	1790	0.14	12.42*	1888	[0.17]
α-Phellandrene dimer III	15.22	1807	0.03	13.06	1946	0.04
(3E)-Cembrene A	16.79	1952	0.28	15.51	2184	0.24
Cembrene C	17.25	1996	0.07	16.18	2254	0.05
Verticilla-4(20),7,11-triene	17.28	1999	0.06	16.29	2264	0.07
Cembrenol	18.58	2128	0.15	19.99	2680	0.16
Serratol	18.72*	2142	1.32	19.52	2623	1.06
Incensole	18.72*	2142	[1.32]	20.53	2745	0.29
Incensyl acetate	18.97	2169	0.09			
Total identified		98.11%			98.09%	
Total reported		98.41%			98.45%	

*: 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