

Date : April 27, 2021

CERTIFICATE OF ANALYSIS – GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 21D20-PTH06

Customer identification : Spruce, Black ORGANIC - Canada - SA310296R

Type : Essential oil

Source : *Picea mariana*

Customer : Plant Therapy

ANALYSIS

Method: PC-MAT-014  - Analysis of the composition of an essential oil or other volatile liquid by FAST GC-FID (in French); identifications validated by GC-MS.

Analyst : Sarah-Eve Tremblay, M. Sc. A., Chimiste

Analysis date : April 26, 2021

Checked and approved by :

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

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PHYSICOCHEMICAL DATA

Physical aspect: Light yellow liquid

Refractive index: 1.4716 ± 0.0003 (20 °C; method PC-MAT-016)

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
2-Methylfuran	tr	Furan
Isovaleral	tr	Aliphatic aldehyde
2-Methylbutyral	tr	Aliphatic aldehyde
2-Ethylfuran	tr	Furan
Toluene	0.04	Simple phenolic
Hexanal	0.02	Aliphatic aldehyde
Octane	0.01	Alkane
(3Z)-Hexenol	0.01	Aliphatic alcohol
Hexanol	0.02	Aliphatic alcohol
Santene	2.29	Normonoterpene
Styrene	0.01	Simple phenolic
2-Heptanone	tr	Aliphatic ketone
Unknown	0.12	Normonoterpene
Bornylene	tr	Monoterpene
Unknown	tr	Unknown
Hashishene	tr	Monoterpene
Tricyclene	1.76	Monoterpene
α -Thujene	0.15	Monoterpene
α -Pinene	20.07	Monoterpene
α -Fenchene	0.16	Monoterpene
Camphene	15.97	Monoterpene
Thuja-2,4(10)-diene	0.04	Monoterpene
Benzaldehyde	tr	Simple phenolic
meta-Cymene	0.07	Monoterpene
Sabinene	0.04	Monoterpene
β -Pinene	5.33	Monoterpene
6-Methyl-5-hepten-2-one	tr	Aliphatic ketone
Dehydro-1,8-cineole	0.02	Monoterpenic ether
Myrcene	3.31	Monoterpene
2-Carene	0.01	Monoterpene
α -Phellandrene	0.37	Monoterpene
Pseudolimonene	0.01	Monoterpene
Octanal	tr	Aliphatic aldehyde
Unknown	0.02	Oxygenated monoterpene
Δ^3 -Carene	8.47	Monoterpene
α -Terpinene	0.38	Monoterpene
ortho-Cymene	0.02	Monoterpene
para-Cymene	0.37	Monoterpene
Unknown	0.02	Unknown
β -Phellandrene	1.38	Monoterpene
1,8-Cineole	0.01	Monoterpenic ether
Limonene	3.90	Monoterpene
(Z)- β -Ocimene	0.02	Monoterpene
(E)- β -Ocimene	0.01	Monoterpene
γ -Terpinene	0.36	Monoterpene

Unknown	0.09	Oxygenated monoterpene
Unknown	0.02	Unknown
meta-Cymenene	0.02	Monoterpene
Fenchone	0.06	Monoterpenic ketone
Isoterpinolene	0.06	Monoterpene
γ-Campholenal	0.13	Aliphatic alcohol
para-Cymenene	0.28	Monoterpene
Terpinolene	1.23	Monoterpene
α-Pinene oxide	tr	Monoterpenic ether
2-Nonanone	0.01	Aliphatic ketone
Unknown	0.02	Unknown
Linalool	0.16	Monoterpenic alcohol
Nonanal	0.03	Aliphatic aldehyde
endo-Fenchol	0.18	Monoterpenic alcohol
3-Methyl-3-butenyl isovalerate	0.01	Aliphatic ester
cis-para-Menth-2-en-1-ol	0.01	Monoterpenic alcohol
α-Campholenal	0.13	Monoterpenic aldehyde
trans-Pinocarveol	0.15	Monoterpenic alcohol
Camphor	0.17	Monoterpenic ketone
trans-para-Menth-2-en-1-ol	0.02	Monoterpenic alcohol
Camphene hydrate	0.16	Monoterpenic alcohol
Isoborneol	0.14	Monoterpenic alcohol
Pinocamphone	0.06	Monoterpenic ketone
Pinocarvone	0.02	Monoterpenic ketone
Borneol	1.03	Monoterpenic alcohol
Unknown	0.04	Unknown
Isopinocamphone	0.06	Monoterpenic ketone
Terpinen-4-ol	0.38	Monoterpenic alcohol
meta-Cymen-8-ol	0.02	Monoterpenic alcohol
para-Cymen-8-ol	0.04	Monoterpenic alcohol
α-Terpineol	1.68	Monoterpenic alcohol
Myrtenal	0.08	Monoterpenic aldehyde
Myrtenol	0.01	Monoterpenic alcohol
Unknown	0.05	Unknown
Verbenone	0.04	Monoterpenic ketone
trans-Piperitol	0.01	Monoterpenic alcohol
endo-Fenchyl acetate	0.26	Monoterpenic ester
trans-Carveol	0.02	Monoterpenic alcohol
cis-Isocarveol	0.01	Monoterpenic alcohol
Citronellol	0.07	Monoterpenic alcohol
Unknown	0.01	Oxygenated monoterpene
Thymol methyl ether	0.02	Monoterpenic ether
Carvone	0.01	Monoterpenic ketone
Piperitone	0.03	Monoterpenic ketone
Geraniol	0.03	Monoterpenic alcohol
Geranial	0.03	Monoterpenic aldehyde
Unknown	0.09	Unknown
trans-Verbenyl acetate	0.02	Monoterpenic ester
trans-Linalool oxide acetate (pyr.)	0.03	Monoterpenic ester
Bornyl acetate	19.30	Monoterpenic ester
Isobornyl acetate	0.54	Monoterpenic ester
cis-Verbenyl acetate	0.03	Monoterpenic ester

Unknown	0.13	Monoterpenic ester
<i>trans</i> -Pinocarvyl acetate	0.12	Monoterpenic ester
Myrtenyl acetate	0.01	Monoterpenic ester
Terpinyl acetate analog	tr	Monoterpenic ester
<i>trans</i> -Carvyl acetate	0.06	Monoterpenic ester
exo-2-Hydroxycineole acetate	0.02	Monoterpenic ester
Unknown	0.02	Unknown
α -Terpinyl acetate	0.06	Monoterpenic ester
Citronellyl acetate	0.08	Monoterpenic ester
Longicyclene	0.03	Sesquiterpene
Unknown	0.02	Oxygenated monoterpene
α -Copaene	0.03	Sesquiterpene
β -Bourbonene	0.01	Sesquiterpene
Geranyl acetate	0.20	Monoterpenic ester
β -Elemene	0.07	Sesquiterpene
Longifolene	0.17	Sesquiterpene
β -Caryophyllene	0.22	Sesquiterpene
β -Copaene	0.01	Sesquiterpene
<i>trans</i> -Muurolo-3,5-diene	0.03	Sesquiterpene
α -Humulene	0.06	Sesquiterpene
Unknown	0.04	Unknown
<i>trans</i> -Cadina-1(6),4-diene	0.10	Sesquiterpene
γ -Muurolole	0.13	Sesquiterpene
Germacrene D	0.04	Sesquiterpene
Dodecanol	0.06	Aliphatic alcohol
β -Selinene	0.04	Sesquiterpene
<i>trans</i> -Muurolo-4(15),5-diene	0.02	Sesquiterpene
Bicyclogermacrene	0.02	Sesquiterpene
α -Selinene	0.02	Sesquiterpene
α -Muurolole	0.05	Sesquiterpene
Germacrene A	0.30	Sesquiterpene
(3E,6E)- α -Farnesene	0.03	Sesquiterpene
(Z)- γ -Bisabolene	0.04	Sesquiterpene
γ -Cadinene	0.29	Sesquiterpene
Cubebol	0.02	Sesquiterpenic alcohol
<i>trans</i> -Calamenene	0.16	Sesquiterpene
δ -Cadinene	1.18	Sesquiterpene
Zonarene	0.08	Sesquiterpene
<i>trans</i> -Cadina-1,4-diene	0.06	Sesquiterpene
α -Cadinene	0.08	Sesquiterpene
α -Calacorene	0.07	Sesquiterpene
(E)- α -Bisabolene	0.14	Sesquiterpene
Unknown	0.04	Oxygenated sesquiterpene
Unknown	0.01	Oxygenated sesquiterpene
(E)-Nerolidol	0.04	Sesquiterpenic alcohol
Spathulenol	0.02	Sesquiterpenic alcohol
Caryophyllene oxide	0.01	Sesquiterpenic ether
Globulol	0.02	Sesquiterpenic alcohol
Unknown	0.02	Unknown
10-epi-Cubebol	0.05	Sesquiterpenic alcohol
1-epi-Cubebol	0.06	Sesquiterpenic alcohol
τ -Cadinol	0.32	Sesquiterpenic alcohol

τ-Muurolol	0.31	Sesquiterpenic alcohol
Cubenol	0.04	Sesquiterpenic alcohol
α-Muurolol	0.10	Sesquiterpenic alcohol
α-Cadinol	0.55	Sesquiterpenic alcohol
cis-Calamenen-10-ol	0.01	Sesquiterpenic alcohol
Unknown	0.02	Oxygenated sesquiterpene
Unknown	0.02	Oxygenated sesquiterpene
(1,8Z,11Z,14Z)-Heptadecatetraene	0.04	Alkene
(8Z)-Heptadecene	0.02	Alkene
Amorpha-4,9-dien-2-ol	0.04	Sesquiterpenic alcohol
(5Z)-Tetradecen-14-olide?	0.05	Aliphatic lactone
Unknown	0.03	Oxygenated sesquiterpene
Unknown	0.07	Oxygenated sesquiterpene
Unknown	0.05	Oxygenated sesquiterpene
Unknown	0.02	Oxygenated sesquiterpene
Hexadecanal	0.01	Aliphatic aldehyde
Manoyl oxide	0.05	Diterpenic ether
Unknown	0.02	Oxygenated diterpene
(E,E)-Geranyllinalool	0.03	Diterpenic alcohol
Manool	0.09	Diterpenic alcohol
7,13-Abietadiene	0.02	Diterpene
(Z)-Abienol	0.08	Diterpenic alcohol
Isopimaral	0.02	Diterpenic aldehyde
Palustral	0.03	Diterpenic aldehyde
Abietal	0.02	Diterpenic aldehyde
Consolidated total	98.55%	

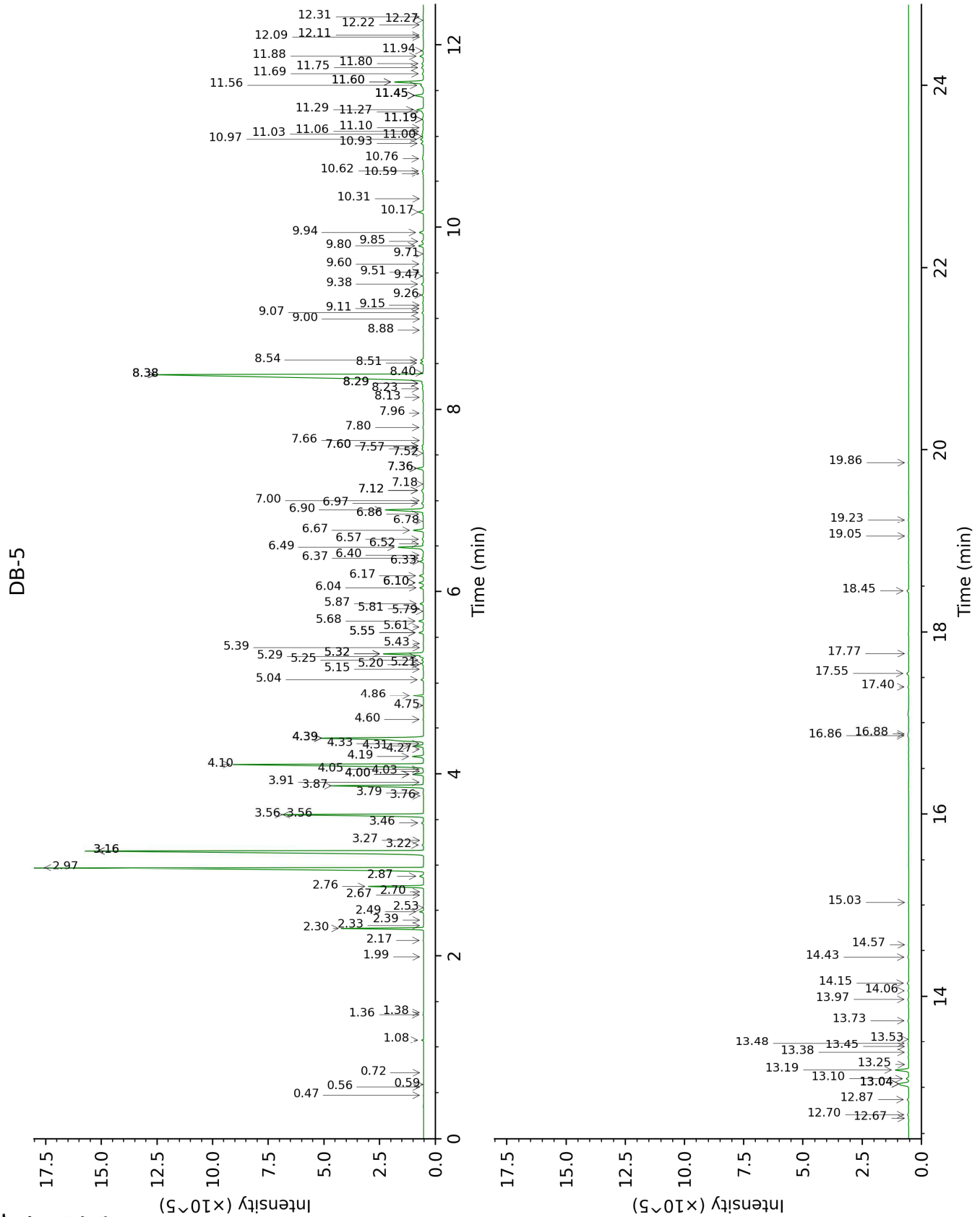
tr: The compound has been detected below 0.005% of total signal.

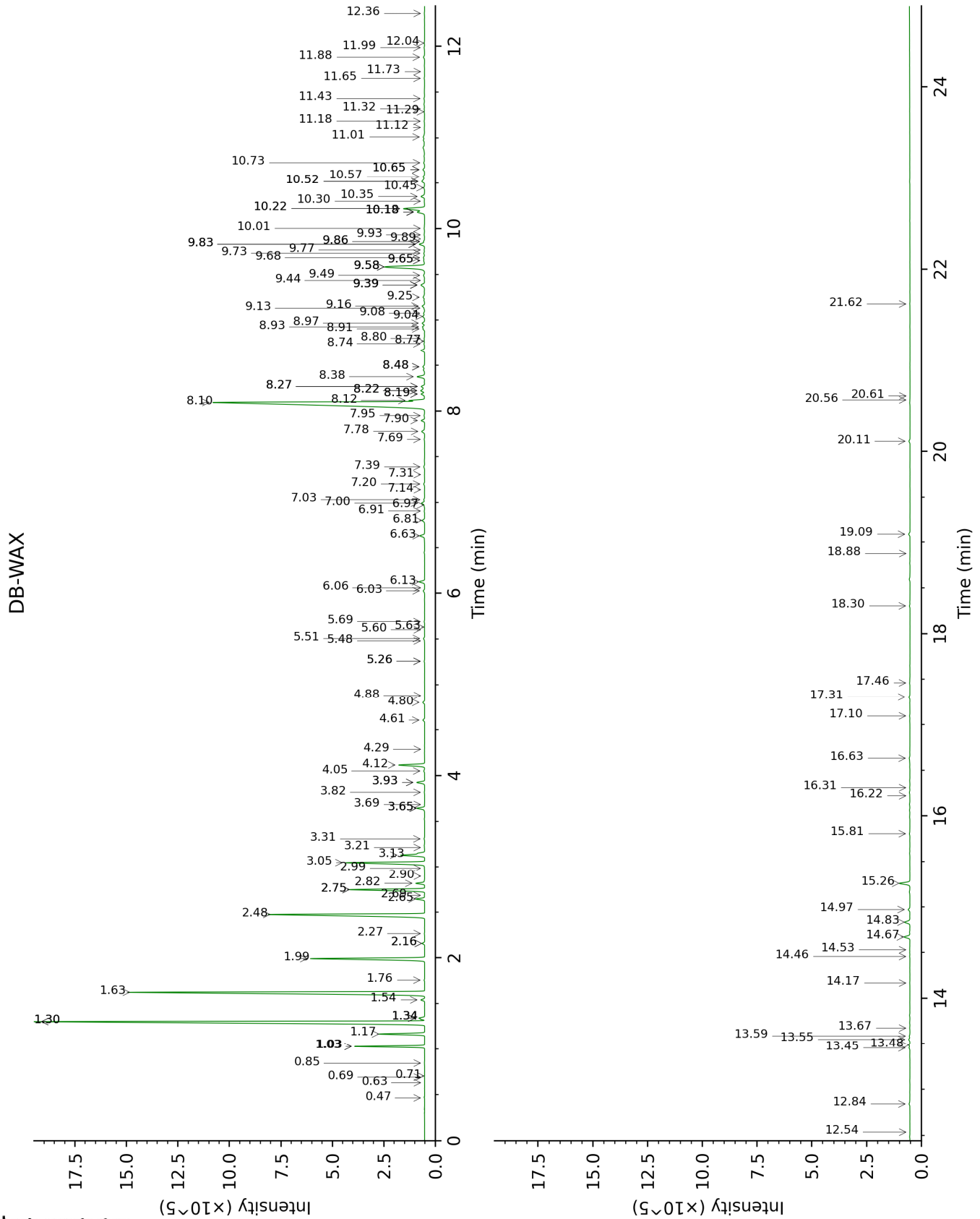
Note: no correction factor was applied

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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FULL ANALYSIS DATA

Identification	Column DB-5			Column DB-WAX		
	R.T	R.I	%	R.T	R.I	%
2-Methylfuran	0.48	602	tr	0.63	858	tr
Isovaleral	0.56	639	tr	0.71	886	tr
2-Methylbutyral	0.59	650	tr	0.69	881	tr
2-Ethylfuran	0.72	701	tr	0.85	918	0.01
Toluene	1.08	758	0.04	1.34*	1001	0.30
Hexanal	1.36	801	0.02	1.76	1043	0.02
Octane	1.38	804	0.01	0.47	784	tr
(3Z)-Hexenol	1.99	857	0.01	5.63	1349	0.01
Hexanol	2.17	873	0.02	5.26*	1322	0.02
Santene	2.30	884	2.29	1.03*	948	2.31
Styrene	2.33	887	0.01	3.68	1208	0.01
2-Heptanone	2.39	892	tr	2.90	1146	tr
Unknown [m/z 79, 93 (66), 94 (52), 91 (39), 77 (37), 122 (31)]	2.49	900	0.12	1.34*	1001	[0.30]
Bornylene	2.53	904	tr	1.03*	948	[2.31]
Unknown [m/z 43, 59 (71), 44 (40), 85 (30), 41 (28), 45 (27)...]	2.67	913	tr			
Hashishene	2.70	916	tr	1.30*	996	20.18
Tricyclene	2.76	920	1.76	1.17	972	1.77
α-Thujene	2.87	927	0.15	1.34*	1001	[0.30]
α-Pinene	2.97	934	20.07	1.30*	996	[20.18]
α-Fenchene	3.16*	946	16.08	1.54	1021	0.16
Camphene	3.16*	946	[16.08]	1.63	1030	15.97
Thuja-2,4(10)-diene	3.22	951	0.04	2.16*	1084	0.11
Benzaldehyde	3.27	954	tr	7.14	1460	tr
meta-Cymene	3.46	967	0.07	2.75*	1134	3.35
Sabinene	3.56*	973	5.37	2.16*	1084	[0.11]
β-Pinene	3.56*	973	[5.37]	1.99	1067	5.33
6-Methyl-5-hepten-2-one	3.76	987	tr	4.88	1298	tr
Dehydro-1,8-cineole	3.79	989	0.02	2.99	1153	0.01
Myrcene	3.87	995	3.31	2.75*	1134	[3.35]
2-Carene	3.91	997	0.01	2.27	1095	0.01
α-Phellandrene	4.00*	1003	0.39	2.64	1126	0.37
Pseudolimonene	4.00*	1003	[0.39]	2.68	1129	0.01
Octanal	4.03	1005	tr	4.29	1253	tr
Unknown [m/z 109, 81 (35), 43 (34), 69 (33), 67 (29), 152 (29)]	4.05	1007	0.02	3.31	1179	0.03
Δ3-Carene	4.10	1010	8.47	2.48	1112	8.49
α-Terpinene	4.19	1016	0.38	2.82	1140	0.38

ortho-Cymene	4.27	1021	0.02	3.93*	1226	0.38
para-Cymene	4.31	1023	0.37	3.93*	1226	[0.38]
Unknown [m/z 109, 43 (58), 95 (26)... 137 (15)...]	4.33	1024	0.02	6.06	1380	tr
β-Phellandrene	4.39*	1028	5.26	3.13	1165	1.38
1,8-Cineole	4.39*	1028	[5.26]	3.22	1171	0.01
Limonene	4.39*	1028	[5.26]	3.05	1158	3.90
(Z)-β-Ocimene	4.60	1041	0.02	3.64*	1206	0.38
(E)-β-Ocimene	4.75	1051	0.01	3.82	1218	0.02
γ-Terpinene	4.86	1058	0.36	3.64*	1206	[0.38]
Unknown [m/z 79, 93 (60), 43 (40), 94 (35), 137 (33), 77 (26), 91 (20), 152 (18)]	5.04	1069	0.09	4.61	1277	0.09
Unknown [m/z 94, 79 (74), 67 (33), 41 (22), 95 (21)...]	5.15	1076	0.02			
meta-Cymenene	5.20	1080	0.02	6.03	1378	0.08
Fenchone	5.22	1080	0.06	5.51	1340	0.06
Isoterpinolene	5.25	1083	0.06	4.05	1236	0.04
γ-Campholenal	5.29	1085	0.13	4.80	1292	0.10
para-Cymenene	5.32*	1087	1.53	6.13	1385	0.28
Terpinolene	5.32*	1087	[1.53]	4.12	1241	1.23
α-Pinene oxide	5.39	1092	tr	5.26*	1322	[0.02]
2-Nonanone	5.43	1094	0.01	5.60	1347	0.01
Unknown [m/z 79, 94 (87), 77 (25), 91 (21), 93 (16), 95 (12), 138 (8)]	5.55*	1102	0.18			
Linalool	5.55*	1102	[0.18]	7.90	1518	0.16
Nonanal	5.61	1106	0.03	5.69	1354	0.02
endo-Fenchol	5.68	1110	0.18	8.19*	1540	0.19
3-Methyl-3-butenyl isovalerate	5.79	1117	0.01	5.48	1338	0.01
cis-para-Menth-2-en-1-ol	5.81	1119	0.01	7.95	1522	0.04
α-Campholenal	5.87	1122	0.13	6.81	1435	0.14
trans-Pinocarveol	6.04	1133	0.15	8.97	1602	0.12
Camphor	6.10*	1137	0.18	7.00	1450	0.17
trans-para-Menth-2-en-1-ol	6.10*	1137	[0.18]	8.77	1586	0.02
Camphene hydrate	6.18	1142	0.16	8.27*	1547	0.19
Isoborneol	6.33	1152	0.14	9.16	1617	0.13
Pinocamphone	6.37	1154	0.06	7.03	1452	0.04
Pinocarvone	6.40	1156	0.02	7.69	1502	0.02
Borneol	6.49	1162	1.03	9.58*	1652	2.76
Unknown [m/z 109, 108 (48), 67 (41), 81 (40), 41 (28)...]	6.52	1164	0.04	7.20	1465	0.05

Isopinocampnone	6.57	1168	0.06	7.39	1479	0.05
Terpinen-4-ol	6.67	1174	0.38	8.38	1555	0.40
meta-Cymen-8-ol	6.78	1180	0.02	11.29	1795	0.02
para-Cymen-8-ol	6.86	1186	0.04	11.32	1798	0.02
α -Terpineol	6.90	1189	1.68	9.58*	1652	[2.76]
Myrtenal	6.98	1193	0.08	8.48*	1564	0.10
Myrtenol	7.00	1195	0.01	10.65*	1741	0.10
Unknown [m/z 95, 93 (32), 121 (24), 79 (22), 91 (21), 105 (16)... 154 (2)]	7.12*	1202	0.09	10.73	1747	0.05
Verbenone	7.12*	1202	[0.09]	9.39*	1636	0.25
trans-Piperitol	7.18	1207	0.01	10.18*	1701	0.42
endo-Fenchyl acetate	7.36*	1218	0.27	6.63	1422	0.26
trans-Carveol	7.36*	1218	[0.27]	11.18	1786	0.02
cis-Isocarveol	7.52	1230	0.01	11.73	1834	tr
Citronellol	7.57	1233	0.07	10.52*	1730	0.20
Unknown [m/z 137, 152 (28), 43 (25), 91 (24), 109 (23), 119 (19)]	7.60*	1235	0.06	11.12	1780	0.01
Thymol methyl ether	7.60*	1235	[0.06]	8.27*	1547	[0.19]
Carvone	7.66	1239	0.01	9.83*	1672	0.30
Piperitone	7.80	1248	0.03	9.68	1660	0.07
Geraniol	7.96	1259	0.03	11.43	1808	0.02
Geranial	8.13	1271	0.03	9.93	1680	0.03
Unknown [m/z 43, 119 (72), 81 (66), 54 (48), 41 (47), 58 (44)...]	8.23	1277	0.09			
trans-Verbenyl acetate	8.29*	1281	0.12	9.13	1615	0.02
trans-Linalool oxide acetate (pyr.)	8.29*	1281	[0.12]	8.80	1588	0.03
Bornyl acetate	8.38*†	1287	20.01	8.10	1533	19.30
Isobornyl acetate	8.38*†	1287	[20.01]	8.12	1535	0.54
cis-Verbenyl acetate	8.40†	1288	[20.01]	8.48*	1564	[0.10]
Unknown [m/z 107, 43 (76), 150 (42), 91 (28), 108 (23)]	8.51	1296	0.13	8.93	1598	0.11
trans-Pinocarvyl acetate	8.54	1298	0.12	8.91	1597	0.08
Myrtenyl acetate	8.88	1321	0.01	9.39*	1636	[0.25]
Terpinyl acetate analog	9.00	1330	tr	9.44	1640	0.01
trans-Carvyl acetate	9.07	1335	0.06	10.00	1686	0.04

exo-2-Hydroxycineole acetate	9.11	1338	0.02	9.89	1677	0.01
Unknown [m/z 133, 105 (45), 91 (38), 119 (36)... 150 (3)]	9.15	1341	0.02			
α-Terpinyl acetate	9.26	1348	0.06	9.49	1644	0.06
Citronellyl acetate	9.38	1357	0.08	9.25	1625	0.09
Longicyclene	9.47	1363	0.03	6.91	1443	0.02
Unknown [m/z 93, 121 (68), 43 (67), 67 (44), 136 (36), 107 (34)... 180 (4)]	9.51	1366	0.02	9.86*	1674	0.04
α-Copaene	9.60	1372	0.03	6.97	1448	0.03
β-Bourbonene	9.71	1380	0.01	7.31	1473	0.01
Geranyl acetate	9.80	1387	0.20	10.35	1715	0.20
β-Elementene	9.85	1390	0.07	8.22*	1543	0.26
Longifolene	9.94	1397	0.17	7.78	1508	0.17
β-Caryophyllene	10.17	1413	0.22	8.22*	1543	[0.26]
β-Copaene	10.31	1424	0.01	8.19*	1540	[0.19]
trans-Muurolo-3,5-diene	10.59	1445	0.03	8.74	1584	0.03
α-Humulene	10.62	1447	0.06	9.08	1610	0.05
Unknown [m/z 95, 43 (94), 79 (93), 91 (71), 93 (65), 177 (54), 41 (52)...]	10.76	1457	0.04	10.65*	1741	[0.10]
trans-Cadina-1(6),4-diene	10.92	1470	0.10	9.04	1608	0.09
γ-Muurolole	10.97	1473	0.13	9.39*	1636	[0.25]
Germacrene D	11.00	1476	0.04	9.58*	1652	[2.76]
Dodecanol	11.03	1477	0.06	12.84	1935	0.05
β-Selinene	11.06	1480	0.04	9.65*	1658	0.06
trans-Muurolo-4(15),5-diene	11.10	1483	0.02	9.65*	1658	[0.06]
Bicyclogermacrene	11.19*	1489	0.07	9.86*	1674	[0.04]
α-Selinene	11.19*	1489	[0.07]	9.77	1667	0.02
α-Muurolole	11.27	1496	0.05	9.83*	1672	[0.30]
Germacrene A	11.29	1497	0.30	10.18*	1701	[0.42]
(3E,6E)-α-Farnesene	11.45*	1509	0.39	10.30	1711	0.03
(Z)-γ-Bisabolene	11.45*	1509	[0.39]	9.73	1664	0.04
γ-Cadinene	11.45*	1509	[0.39]	10.18*	1701	[0.42]
Cubebol	11.45*	1509	[0.39]	12.36	1891	0.02
trans-Calamenene	11.56	1518	0.16	11.01	1772	0.10
δ-Cadinene	11.60*	1521	1.26	10.22*	1704	1.20
Zonarene	11.60*	1521	[1.26]	10.18*	1701	[0.42]
trans-Cadina-1,4-diene	11.69	1528	0.06	10.45	1724	0.05
α-Cadinene	11.75	1533	0.08	10.57	1734	0.09
α-Calacorene	11.80	1537	0.07	11.88	1848	0.07

(E)- α -Bisabolene	11.88	1543	0.14	10.52*	1730	[0.20]
Unknown [m/z 95, 81 (70), 109 (68), 93 (59), 67 (53), 41 (49), 139 (40)... 220 (3)]	11.94	1548	0.04	11.99	1857	0.04
Unknown [m/z 93, 135 (9), 107 (72), 177 (72), 81 (57), 149 (53)... 220 (25)]	12.09	1559	0.01	12.04	1862	0.02
(E)-Nerolidol	12.11	1561	0.04	13.59	2004	0.03
Spathulenol	12.22	1570	0.02	14.17	2061	0.01
Caryophyllene oxide	12.27	1574	0.01	12.54	1906	tr
Globulol	12.31	1577	0.02	13.67	2013	0.01
Unknown0 [m/z 108, 43 (56), 109 (33), 93 (26), 119 (24)... 212 (2)]	12.67	1605	0.02	14.53	2096	0.01
10-epi-Cubenol	12.70	1608	0.05	13.48	1995	0.05
1-epi-Cubenol	12.87	1622	0.06	13.55	2001	0.07
τ -Cadinol	13.04*	1636	0.62	14.67	2110	0.32
τ -Muurolol	13.04*	1636	[0.62]	14.83	2126	0.31
Cubenol	13.04*	1636	[0.62]	13.45	1992	0.04
α -Muurolol	13.10	1640	0.10	14.97	2140	0.10
α -Cadinol	13.19	1648	0.55	15.26	2169	0.57
<i>cis</i> -Calamenen-10-ol	13.25	1653	0.01	16.22	2268	0.01
Unknown [m/z 159, 177 (59), 135 (57), 91 (47), 105 (47)... 220? (25)]	13.38	1664	0.02			
Unknown [m/z 177, 159 (98), 93 (94), 136 (84), 121 (68), 135 (65), 91 (57)... 220 (23)]	13.45	1670	0.02			
(1,8Z,11Z,14Z)-Heptadecatetraene	13.48	1672	0.04	11.65	1827	0.02
(8Z)-Heptadecene	13.53	1677	0.02	10.22*	1704	[1.20]
Amorpha-4,9-dien-2-ol	13.74	1693	0.04	16.63	2312	0.04
(5Z)-Tetradecen-14-olide?	13.97	1713	0.05			
Unknown [m/z 159, 220 (92), 93 (88), 177 (63), 91 (57), 107 (55)]	14.06	1721	0.03	17.46	2402	0.03
Unknown [m/z 159, 132 (79), 135 (37), 91 (35), 177 (33)... 220 (16)]	14.15	1729	0.07	17.31	2385	0.07

Unknown [m/z 81, 43 (83), 123 (65), 71 (48), 97 (41), 109 (38)... 236? (t)]	14.43	1753	0.05	18.88	2563	0.01
Unknown [m/z 43, 147 (93), 159 (76), 187 (76), 81 (64), 93 (56), 121 (56), 220 (51)]	14.57	1765	0.02			
Hexadecanal	15.03	1805	0.01	14.46	2089	0.01
Manoyl oxide	16.86	1975	0.05	16.31	2278	0.01
Unknown [m/z 105, 91 (100), 81 (89), 79 (86), 109 (86), 257 (83)... 275 (12)...]	16.88	1977	0.02	15.81	2225	0.02
(<i>E,E</i>)-Geranylinalool	17.40	2028	0.03	18.30	2497	0.03
Manool	17.55	2042	0.09	19.09	2588	0.08
7,13-Abietadiene	17.76	2064	0.02	17.10	2362	0.02
(<i>Z</i>)-Abienol	18.45	2134	0.08	20.11	2711	0.06
Isopimaral	19.05	2196	0.02	20.61	2772	tr
Palustral	19.23	2215	0.03	20.56	2767	0.01
Abietal	19.86	2283	0.02	21.62	2901	0.02
Total identified		97.81%			97.64%	
Total reported		98.70%			98.18%	

*: 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