

Date : November 27, 2018

CERTIFICATE OF ANALYSIS – GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 18K26-PTH02-1-CC

Customer identification : Black Spruce - Canada - SA5101710R

Type : Essential oil

Source : *Picea mariana*

Customer : Plant Therapy

ANALYSIS

Method: PC-PA-014-17J19 - Analysis of the composition of an essential oil, or other volatile liquid, by FAST GC-FID (in French); identifications validated by GC-MS.

Analyst : Benoit Roger, Ph. D.

Analysis date : November 26, 2018

Checked and approved by :

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

Note: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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

PHYSICOCHEMICAL DATA

Physical aspect: Clear liquid

Refractive index: 1.4703 ± 0.0003 (20 °C)

CONCLUSION

No adulterant, contaminant or diluent has been detected using this method.

ANALYSIS SUMMARY

Identification	DB-5 (%)	DB-WAX (%)	Classe
Isovaleral	tr	tr	Aliphatic aldehyde
2-Methylbutyral	tr	0.01*	Aliphatic aldehyde
2-Ethylfuran	tr	0.01	Furan
Toluene	0.02	0.02	Simple phenolic
Hexanal	0.03	0.03	Aliphatic aldehyde
Octane	0.01	0.01	Alkane
Unknown	0.01	[0.01]*	Alkene
(2E)-Hexenal	0.02	0.03	Aliphatic aldehyde
(3Z)-Hexenol	0.08	0.10	Aliphatic alcohol
Hexanol	0.02	0.04*	Aliphatic alcohol
Santene	1.90	1.87*	Monoterpene
Styrene	tr	0.22*	Simple phenolic
2-Heptanone	tr	tr	Aliphatic ketone
Unknown	0.02	0.26*	Normonoterpene
Bornylene	0.01	[1.87]*	Monoterpene
Tricyclene	1.50	1.52	Monoterpene
α -Thujene	0.24	[0.26]*	Monoterpene
α -Pinene	17.48	17.20	Monoterpene
Camphene	15.08*	14.84	Monoterpene
α -Fenchene	[15.08]*	0.09	Monoterpene
Thuja-2,4(10)-diene	0.03	0.23*	Monoterpene
meta-Cymene	0.06	3.33*	Monoterpene
β -Pinene	7.67*	7.33	Monoterpene
Sabinene	[7.67]*	[0.23]*	Monoterpene
6-Methyl-5-hepten-2-one	0.03	0.05*	Aliphatic ketone
Myrcene	3.35	[3.33]*	Monoterpene
2-Carene	0.01	0.01	Monoterpene
α -Phellandrene	0.25*	0.23	Monoterpene
Pseudolimonene	[0.25]*	0.01	Monoterpene
Δ^3 -Carene	9.75	9.58	Monoterpene
α -Terpinene	0.19	0.19	Monoterpene
Unknown	tr	0.01	Monoterpene
ortho-Cymene	0.04*	0.35*	Simple phenolic
Carvomenthene	[0.04]*	0.01	Aliphatic alcohol
para-Cymene	0.35	[0.35]*	Monoterpene
Limonene	5.03*	3.25	Monoterpene
β -Phellandrene	[5.03]*	1.70*	Monoterpene
1,8-Cineole	[5.03]*	[1.70]*	Monoterpenic ether
(Z)- β -Ocimene	0.02	0.02	Monoterpene
(E)- β -Ocimene	0.01	0.01	Monoterpene
γ -Terpinene	0.23	[0.22]*	Monoterpene
Unknown	0.04	0.04	Oxygenated monoterpene
Unknown	0.01		Unknown
meta-Cymenene	0.02	0.02	Monoterpene
Fenchone	0.04	0.03	Aliphatic alcohol
Terpinolene	1.18*	0.91	Monoterpene
Isoterpinolene	[1.18]*	0.05	Monoterpene
para-Cymenene	[1.18]*	0.13	Monoterpene

γ-Campholenal	[1.18]*	[0.05]*	Aliphatic alcohol
α-Pinene oxide	0.03*	[0.04]*	Monoterpenic ether
2-Nonanone	[0.03]*	0.01	Aliphatic ketone
Linalool	0.49*	0.45	Monoterpenic alcohol
Unknown	[0.49]*		Unknown
Nonanal	0.02	0.01	Aliphatic aldehyde
endo-Fenchol	0.08	0.09*	Monoterpenic alcohol
3-Methyl-3-butenyl isovalerate	0.01	0.02	Aliphatic ester
cis-para-Menth-2-en-1-ol	0.05	0.08	Monoterpenic alcohol
α-Campholenal	0.15	0.21*	Monoterpenic aldehyde
trans-Pinocarveol	0.17	0.16	Monoterpenic alcohol
Camphor	0.13*	0.11	Monoterpenic ketone
trans-para-Menth-2-en-1-ol	[0.13]*	0.03	Monoterpenic alcohol
Camphene hydrate	0.54*	0.54*	Monoterpenic alcohol
Isopulegol	[0.54]*	0.01	Monoterpenic alcohol
Citronellal	[0.21]	[0.21]*	Monoterpenic aldehyde
Pinocamphone	0.21	0.03	Monoterpenic ketone
Pinocarvone	0.01	0.02	Monoterpenic ketone
Borneol	1.15	2.29*	Monoterpenic alcohol
Unknown	0.04	0.03	Unknown
Isopinocamphone	0.05	0.05	Monoterpenic ketone
Terpinen-4-ol	0.40	0.39	Monoterpenic alcohol
Cryptone	0.05*	0.15	Normonoterpenic ketone
meta-Cymen-8-ol	[0.05]*	0.03	Monoterpenic alcohol
para-Cymen-8-ol	0.06	0.07	Monoterpenic alcohol
trans-Isocarveol	0.04	0.06	Monoterpenic alcohol
α-Terpineol	1.05*	[2.29]*	Monoterpenic alcohol
Myrtenal	[1.05]*	0.16*	Monoterpenic aldehyde
Myrtenol	0.06	0.08	Monoterpenic alcohol
Methylchavicol	0.01	0.05	Phenylpropanoid
Verbenone	0.13*	0.26*	Monoterpenic ketone
Unknown	[0.13]*	0.02	Unknown
endo-Fenchyl acetate	0.32	0.29*	Monoterpenic ester
cis-Isocarveol	0.02	tr	Monoterpenic alcohol
Citronellol	0.09	0.32*	Monoterpenic alcohol
Thymol methyl ether	0.08	0.37*	Monoterpenic ether
Carvone	0.03	0.03	Monoterpenic ketone
Piperitone	0.04	0.05	Monoterpenic ketone
Geraniol	0.06	0.07	Monoterpenic alcohol
Geranial	0.02	0.03	Monoterpenic aldehyde
Unknown	0.03		Unknown
Bornyl acetate	23.11*	22.77	Monoterpenic ester
Isobornyl acetate	[23.11]*	0.67	Monoterpenic ester
cis-Verbenyl acetate	[23.11]*	[0.16]*	Monoterpenic ester
Unknown	[23.11]*	0.25	Unknown
Unknown	[23.11]*	0.10*	Monoterpenic ester
trans-Pinocarvyl acetate	0.12	[0.10]*	Monoterpenic ester
Car-3-en-5-one	0.03	0.02	Monoterpenic ketone
Myrtenyl acetate	0.04	0.05	Monoterpenic ester
Terpinyl acetate analog	0.08	[0.26]*	Monoterpenic ester
trans-Carvyl acetate	0.04	0.03	Monoterpenic ester
exo-2-Hydroxycineole acetate	0.04	0.07	Monoterpenic ester

Unknown	0.03		Unknown
α -Cubebene	0.01	[0.29]*	Sesquiterpene
α -Terpinyl acetate	0.09	0.09	Monoterpenic ester
Citronellyl acetate	0.09	0.10	Monoterpenic ester
Longicyclene	0.03	0.02	Sesquiterpene
Unknown	0.02	0.35*	Oxygenated monoterpene
α -Copaene	0.04	0.04	Sesquiterpene
β -Bourbonene	0.01	0.01	Sesquiterpene
Geranyl acetate	0.24*	0.23	Monoterpenic ester
Unknown	[0.24]*	0.02	Sesquiterpene
β -Elemene	0.09	[0.54]*	Sesquiterpene
Longifolene	0.17	0.20	Sesquiterpene
Methyleugenol	tr	0.01	Phenylpropanoid
β -Caryophyllene	0.30	[0.37]*	Sesquiterpene
β -Copaene	0.02	[0.09]*	Sesquiterpene
<i>cis</i> -Muurolo-3,5-diene	0.01	0.08*	Sesquiterpene
<i>trans</i> -Muurolo-3,5-diene	0.03	[0.08]*	Sesquiterpene
α -Humulene	0.07	0.08	Sesquiterpene
Unknown	0.10*	0.10*	Unknown
<i>cis</i> -Muurolo-4(15),5-diene	[0.10]*	0.11	Sesquiterpene
<i>trans</i> -Cadina-1(6),4-diene	0.08	0.08	Sesquiterpene
γ -Muurolole	0.15	[0.26]*	Sesquiterpene
Germacrene D	0.16	[2.29]*	Sesquiterpene
β -Selinene	0.05	0.11	Sesquiterpene
<i>trans</i> -Muurolo-4(15),5-diene	0.05	0.04	Sesquiterpene
α -Selinene	0.07	[0.35]*	Sesquiterpene
α -Muurolole	0.37	[0.35]*	Sesquiterpene
γ -Cadinene	0.47	0.47	Sesquiterpene
δ -Cadinene	1.41*	1.29*	Sesquiterpene
<i>trans</i> -Calamenene	[1.41]*	0.09	Sesquiterpene
Zonarene	[1.41]*	[1.29]*	Sesquiterpene
<i>trans</i> -Cadina-1,4-diene	0.04	0.04	Sesquiterpene
α -Cadinene	0.09	[0.10]*	Sesquiterpene
α -Calacorene	0.02	0.02	Sesquiterpene
(<i>E</i>)- α -Bisabolene	0.23	[0.32]*	Sesquiterpene
β -Calacorene	0.02	0.01	Sesquiterpene
(<i>E</i>)-Nerolidol	0.02	0.04*	Sesquiterpenic alcohol
Caryophyllene oxide	0.02	0.02	Sesquiterpenic ether
Globulol	0.02	0.01	Sesquiterpenic alcohol
Unknown	0.02	0.01	Unknown
1- <i>epi</i> -Cubenol	0.02	[0.04]*	Sesquiterpenic alcohol
τ -Cadinol	0.21*	0.11	Sesquiterpenic alcohol
τ -Muurolol	[0.21]*	0.09	Sesquiterpenic alcohol
Cubenol	[0.21]*	0.03	Sesquiterpenic alcohol
α -Muurolol	0.04	0.04	Sesquiterpenic alcohol
α -Cadinol	0.19	0.19	Sesquiterpenic alcohol
<i>cis</i> -Calamenen-10-ol	0.01	0.01	Sesquiterpenic alcohol
<i>trans</i> -Calamenen-10-ol	0.01	0.02*	Sesquiterpenic alcohol
(1 <i>R</i> ,2 <i>Z</i> ,11 <i>Z</i> ,14 <i>Z</i>)-Heptadecatetraene	0.01	0.01	Alkene
Amorpha-4,9-dien-2-ol	0.02	[0.02]*	Sesquiterpenic alcohol
Unknown	0.04	0.03	Oxygenated sesquiterpene
(<i>E,E</i>)-Geranyllinalool	0.01	0.01	Diterpenic alcohol

Manool	0.02	0.03	Diterpenic alcohol
(Z)-Abienol	0.02	0.02	Diterpenic alcohol
Total identified	98.83%	98.12%	

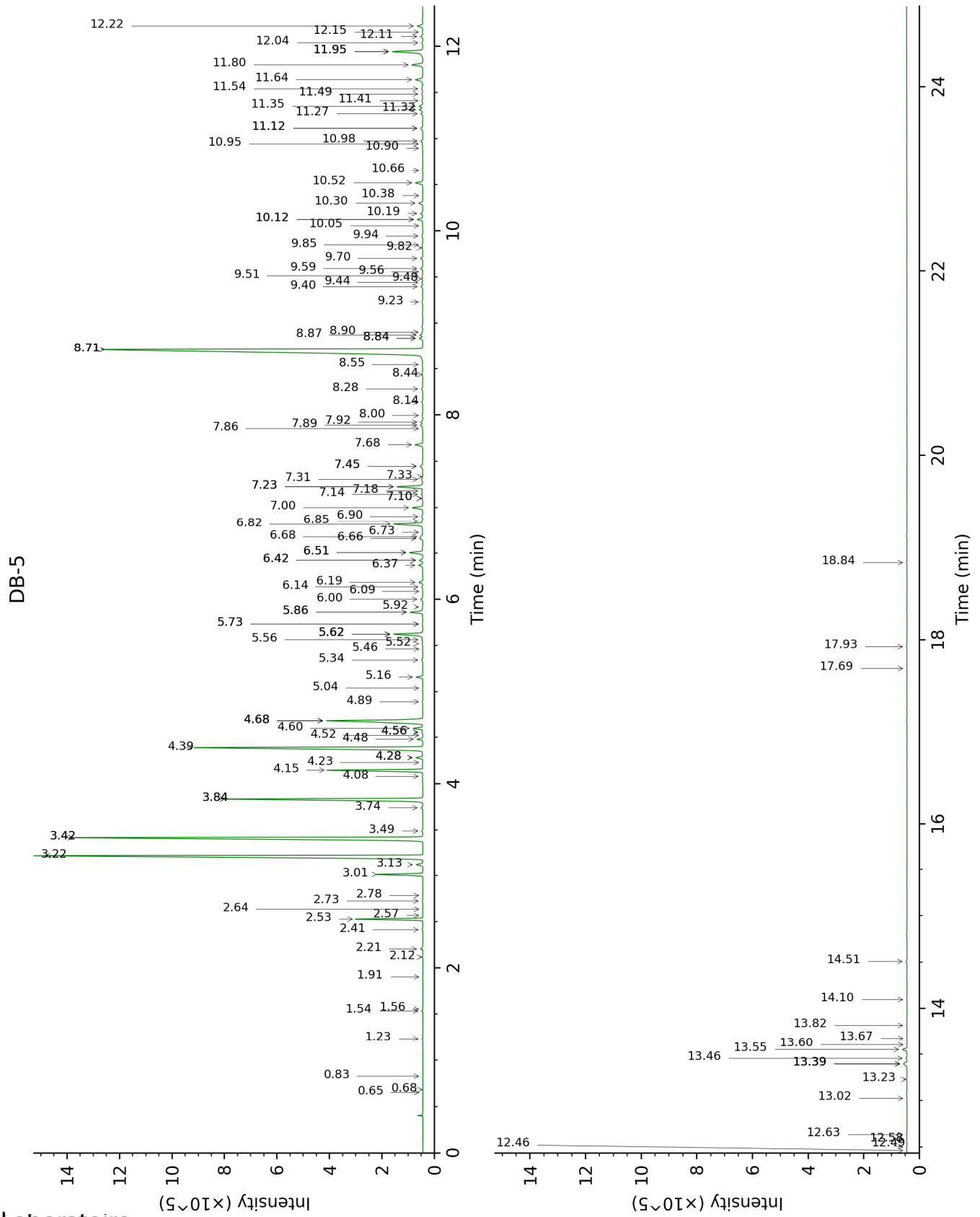
*: Two or more compounds are coeluting on this column

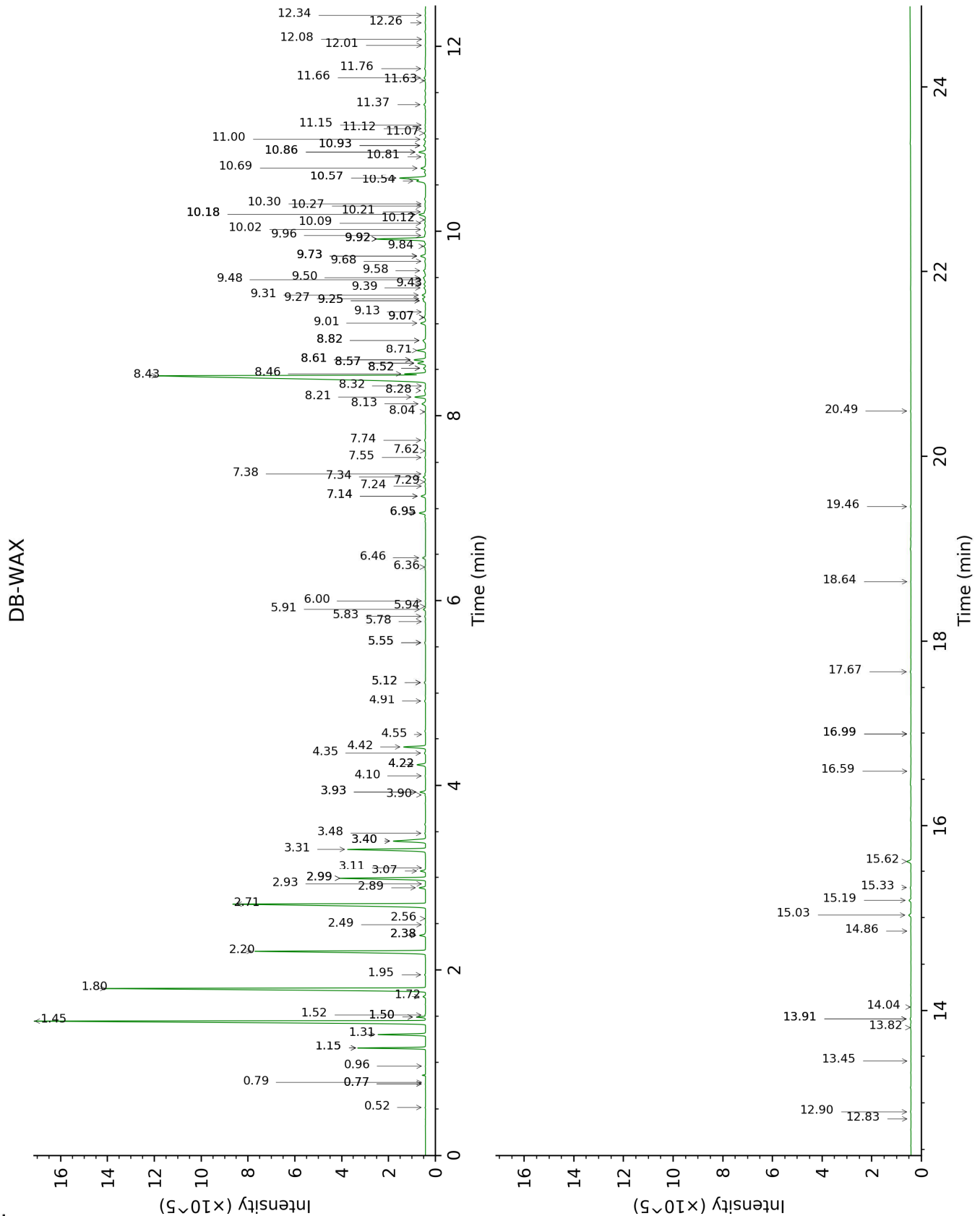
[xx]: Duplicate percentage due to coelutions, not taken account in the identified total

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

Note: no correction factor was applied

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	%
Isovaleral	0.65	642	tr	0.79	888	tr
2-Methylbutyral	0.68	651	tr	0.77*	883	0.01
2-Ethylfuran	0.83	693	tr	0.96	923	0.01
Toluene	1.23	756	0.02	1.52	1004	0.02
Hexanal	1.54	797	0.03	1.95	1044	0.03
Octane	1.56	800	0.01	0.52	786	0.01
Unknown [m/z 109, 67 (32), 81 (14), 41 (12), 124 (10)]	1.90	831	0.01	0.77*	883	[0.01]
(2E)-Hexenal	2.12	848	0.02	3.48	1173	0.03
(3Z)-Hexenol	2.21	855	0.08	5.91	1348	0.10
Hexanol	2.41	872	0.02	5.55*	1323	0.04
Santene	2.53	881	1.90	1.15*	952	1.87
Styrene	2.57	884	tr	3.93*	1208	0.22
2-Heptanone	2.64	890	tr	3.11	1144	tr
Unknown [m/z 79, 93 (66), 94 (52), 91 (39), 77 (37), 122 (31)]	2.72	897	0.02	1.50*	1002	0.26
Bornylene	2.78	902	0.01	1.15*	952	[1.87]
Tricyclene	3.01	918	1.50	1.31	974	1.52
α-Thujene	3.13	925	0.24	1.50*	1002	[0.26]
α-Pinene	3.22	931	17.48	1.45	996	17.20
Camphene	3.42*	944	15.08	1.80	1030	14.84
α-Fenchene	3.42*	944	[15.08]	1.72	1022	0.09
Thuja-2,4(10)-diene	3.49	949	0.03	2.38*	1085	0.23
meta-Cymene	3.74	965	0.06	2.99*	1134	3.33
β-Pinene	3.84*	971	7.67	2.20	1068	7.33
Sabinene	3.84*	971	[7.67]	2.38*	1085	[0.23]
6-Methyl-5-hepten-2-one	4.08	988	0.03	5.12*	1298	0.05
Myrcene	4.15	992	3.35	2.99*	1134	[3.33]
2-Carene	4.23	997	0.01	2.49	1096	0.01
α-Phellandrene	4.28*	1001	0.25	2.89	1127	0.23
Pseudolimonene	4.28*	1001	[0.25]	2.93	1130	0.01
Δ3-Carene	4.39	1008	9.75	2.71	1113	9.58
α-Terpinene	4.48	1014	0.19	3.07	1141	0.19
Unknown [m/z 117, 132 (96), 115 (65), 91 (44), 131 (19), 116 (18)]	4.52	1016	tr	4.55	1254	0.01
ortho-Cymene	4.56*	1018	0.04	4.22*	1230	0.35
Carvomenthene	4.56*	1018	[0.04]	2.56	1101	0.01
para-Cymene	4.60	1021	0.35	4.22*	1230	[0.35]
Limonene	4.68*	1026	5.03	3.31	1160	3.25
β-Phellandrene	4.68*	1026	[5.03]	3.40*	1167	1.70

1,8-Cineole	4.68*	1026	[5.03]	3.40*	1167	[1.70]
(Z)-β-Ocimene	4.89	1039	0.02	3.90	1206	0.02
(E)-β-Ocimene	5.04	1049	0.01	4.10	1221	0.01
γ-Terpinene	5.16	1056	0.23	3.93*	1208	[0.22]
Unknown [m/z 79, 93 (60), 43 (40), 94 (35), 137 (33), 77 (26), 91 (20), 152 (18)]	5.34	1068	0.04	4.91	1282	0.04
Unknown [m/z 94, 79 (74), 67 (33), 41 (22), 95 (21)...]	5.46	1075	0.01			
meta-Cymenene	5.52	1079	0.02	6.36	1381	0.02
Fenchone	5.56	1082	0.04	5.83	1343	0.03
Terpinolene	5.62*	1086	1.18	4.42	1244	0.91
Isoterpinolene	5.62*	1086	[1.18]	4.35	1239	0.05
para-Cymenene	5.62*	1086	[1.18]	6.46	1388	0.13
γ-Campholenal	5.62*	1086	[1.18]	5.12*	1298	[0.05]
α-Pinene oxide	5.73*	1092	0.03	5.55*	1323	[0.04]
2-Nonanone	5.73*	1092	[0.03]	5.94	1351	0.01
Linalool	5.86*	1100	0.49	8.20	1518	0.45
Unknown [m/z 79, 94 (87), 77 (25), 91 (21), 93 (16), 95 (12), 138 (8)]	5.86*	1100	[0.49]			
Nonanal	5.92	1104	0.02	6.00	1355	0.01
endo-Fenchol	6.00	1109	0.08	8.52*	1542	0.09
3-Methyl-3-butenyl isovalerate	6.09	1115	0.01	5.78	1339	0.02
cis-para-Menth-2-en-1-ol	6.14	1118	0.05	8.28	1523	0.08
α-Campholenal	6.19	1121	0.15	7.14*	1438	0.21
trans-Pinocarveol	6.37	1133	0.17	9.31	1604	0.16
Camphor	6.42*	1137	0.13	7.34	1453	0.11
trans-para-Menth-2-en-1-ol	6.42*	1137	[0.13]	9.13	1589	0.03
Camphene hydrate	6.51*	1142	0.54	8.61*	1549	0.54
Isopulegol	6.51*	1142	[0.54]	8.32	1527	0.01
Citronellal	6.66†	1152	[0.21]	7.14*	1438	[0.21]
Pinocamphone	6.68†	1153	0.21	7.38	1456	0.03
Pinocarvone	6.73	1156	0.01	8.04	1506	0.02
Borneol	6.82	1162	1.15	9.92*	1652	2.29
Unknown [m/z 109, 108 (48), 67 (41), 81 (40), 41 (28)...]	6.85	1164	0.04	7.55	1469	0.03
Isopinocamphone	6.90	1168	0.05	7.74	1482	0.05
Terpinen-4-ol	7.00	1174	0.40	8.71	1556	0.39
Cryptone	7.10*	1181	0.05	9.27	1600	0.15
meta-Cymen-8-ol	7.10*	1181	[0.05]	11.63	1795	0.03
para-Cymen-8-ol	7.14	1184	0.06	11.66	1798	0.07
trans-Isocarveol	7.18	1186	0.04	11.07	1747	0.06

α -Terpineol	7.23*	1189	1.05	9.92*	1652	[2.29]
Myrtenal	7.23*	1189	[1.05]	8.82*	1565	0.16
Myrtenol	7.31	1194	0.06	11.00	1742	0.08
Methylchavicol	7.33	1196	0.01	9.48	1617	0.05
Verbenone	7.45*	1203	0.13	9.73*	1638	0.26
Unknown [m/z 95, 93 (32), 121 (24), 79 (22), 91 (21), 105 (16)... 154 (2)]	7.45*	1203	[0.13]	11.12	1752	0.02
endo-Fenchyl acetate	7.68	1219	0.32	6.95*	1424	0.29
cis-Isocarveol	7.86	1231	0.02	12.08	1835	tr
Citronellol	7.89	1234	0.09	10.86*	1730	0.32
Thymol methyl ether	7.92	1236	0.08	8.57*	1546	0.37
Carvone	8.00	1241	0.03	10.12	1669	0.03
Piperitone	8.14	1251	0.04	10.09	1666	0.05
Geraniol	8.28	1261	0.06	11.76	1807	0.07
Geranial	8.44	1271	0.02	10.27	1681	0.03
Unknown [m/z 43, 119 (72), 81 (66), 54 (48), 41 (47), 58 (44)...]	8.55	1279	0.03			
Bornyl acetate	8.71*†	1290	23.11	8.43	1536	22.77
Isobornyl acetate	8.71*†	1290	[23.11]	8.46	1537	0.67
cis-Verbenyl acetate	8.71*†	1290	[23.11]	8.82*	1565	[0.16]
Unknown [m/z 119, 43 (87), 91 (78), 92 (70), 134 (50)...]	8.84*†	1299	[23.11]	9.01	1580	0.25
Unknown [m/z 107, 43 (76), 150 (42), 91 (28), 108 (23)]	8.84*†	1299	[23.11]	9.25*	1599	0.10
trans-Pinocarvyl acetate	8.87	1301	0.12	9.25*	1599	[0.10]
Car-3-en-5-one	8.90	1304	0.03	12.26	1850	0.02
Myrtenyl acetate	9.23	1320	0.04	9.68	1633	0.05
Terpinyl acetate analog	9.40	1332	0.08	9.73*	1638	[0.26]
trans-Carvyl acetate	9.44	1335	0.04	10.30	1683	0.03
exo-2-Hydroxycineole acetate	9.48	1338	0.04	10.21	1676	0.07
Unknown [m/z 133, 105 (45), 91 (38), 119 (36)... 150 (3)]	9.51	1340	0.03			
α -Cubebene	9.56	1343	0.01	6.95*	1424	[0.29]
α -Terpinyl acetate	9.59	1346	0.09	9.84	1646	0.09

Citronellyl acetate	9.70	1354	0.09	9.58	1625	0.10
Longicyclene	9.82	1362	0.03	7.24	1446	0.02
Unknown [m/z 93, 121 (68), 43 (67), 67 (44), 136 (36), 107 (34)... 180 (4)]	9.85	1364	0.02	10.18*	1674	0.35
α-Copaene	9.94	1371	0.04	7.29	1449	0.04
β-Bourbonene	10.05	1379	0.01	7.62	1474	0.01
Geranyl acetate	10.12*	1384	0.24	10.69	1716	0.23
Unknown [m/z 119, 91 (24), 134 (24), 43 (16)... 204 (2)]	10.12*	1384	[0.24]	11.15	1755	0.02
β-Elemene	10.19	1388	0.09	8.61*	1549	[0.54]
Longifolene	10.30	1396	0.17	8.13	1512	0.20
Methyleugenol	10.38	1402	tr	13.45	1958	0.01
β-Caryophyllene	10.52	1413	0.30	8.57*	1546	[0.37]
β-Copaene	10.66	1423	0.02	8.52*	1542	[0.09]
<i>cis</i> -Muurolo-3,5-diene	10.90	1441	0.01	9.07*	1585	0.08
<i>trans</i> -Muurolo-3,5-diene	10.95	1445	0.03	9.07*	1585	[0.08]
α-Humulene	10.98	1447	0.07	9.43	1613	0.08
Unknown [m/z 95, 43 (94), 79 (93), 91 (71), 93 (65), 177 (54), 41 (52)...]	11.12*	1457	0.10	10.93*	1736	0.10
<i>cis</i> -Muurolo-4(15),5-diene	11.12*	1457	[0.10]	9.50	1619	0.11
<i>trans</i> -Cadina-1(6),4-diene	11.27	1469	0.08	9.39	1610	0.08
γ-Muurolole	11.32	1473	0.15	9.73*	1638	[0.26]
Germacrene D	11.35	1475	0.16	9.92*	1652	[2.29]
β-Selinene	11.41	1480	0.05	10.02	1661	0.11
<i>trans</i> -Muurolo-4(15),5-diene	11.49	1485	0.05	9.96	1655	0.04
α-Selinene	11.54	1490	0.07	10.18*	1674	[0.35]
α-Muurolole	11.64	1497	0.37	10.18*	1674	[0.35]
γ-Cadinene	11.80	1509	0.47	10.54	1703	0.47
δ-Cadinene	11.94*	1521	1.41	10.58*	1706	1.29
<i>trans</i> -Calamenene	11.94*	1521	[1.41]	11.37	1773	0.09
Zonarene	11.94*	1521	[1.41]	10.58*	1706	[1.29]
<i>trans</i> -Cadina-1,4-diene	12.04	1528	0.04	10.81	1726	0.04
α-Cadinene	12.11	1533	0.09	10.93*	1736	[0.10]
α-Calacorene	12.16	1537	0.02	12.34	1857	0.02
(<i>E</i>)-α-Bisabolene	12.22	1542	0.23	10.86*	1730	[0.32]
β-Calacorene	12.46	1562	0.02	12.83	1901	0.01
(<i>E</i>)-Nerolidol	12.49	1564	0.02	13.91*	2001	0.04
Caryophyllene oxide	12.58	1571	0.02	12.90	1908	0.02
Globulol	12.64	1575	0.02	14.04	2013	0.01

Unknown0 [m/z 108, 43 (56), 109 (33), 93 (26), 119 (24)... 212 (2)]	13.02	1606	0.02	14.86	2092	0.01
1-epi-Cubenol	13.23	1623	0.02	13.91*	2001	[0.04]
τ-Cadinol	13.40*	1637	0.21	15.03	2109	0.11
τ-Muurolol	13.40*	1637	[0.21]	15.19	2125	0.09
Cubenol	13.40*	1637	[0.21]	13.82	1992	0.03
α-Muurolol	13.46	1642	0.04	15.33	2139	0.04
α-Cadinol	13.55	1650	0.19	15.62	2168	0.19
cis-Calamenen-10-ol	13.60	1654	0.01	16.59	2268	0.01
trans-Calamenen-10-ol	13.67	1660	0.01	16.99*	2310	0.02
(1,8Z,11Z,14Z)- Heptadecatetraene	13.82	1672	0.01	12.01	1829	0.01
Amorpha-4,9-dien-2-ol	14.10	1695	0.02	16.99*	2310	[0.02]
Unknown [m/z 159, 132 (79), 135 (37), 91 (35), 177 (33)... 220 (16)]	14.51	1731	0.04	17.67	2383	0.03
(E,E)- Geranyllinalool	17.69	2023	0.01	18.64	2491	0.01
Manool	17.93	2046	0.02	19.46	2586	0.03
(Z)-Abienol	18.84	2138	0.02	20.49	2710	0.02
Total identified		98.83%			98.12%	
Total reported		99.08%			98.54%	

*: Two or more compounds are coeluting on this column

[xx]: Duplicate percentage due to coelutions, not taken account in the identified 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