

Date : January 23, 2019

CERTIFICATE OF ANALYSIS – GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 19A10-ORA07-1-CC

Customer identification : Frankincense

Type : Essential oil

Source : *Boswellia carterii*

Customer : Organic Aromas Inc.

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 : Lindsay Girard, B. Sc.

Analysis date : January 17, 2019

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: 1.4713 ± 0.0003 (20 °C)

CONCLUSION

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

ANALYSIS SUMMARY

Identification	DB-5 (%)	DB-WAX (%)	Classe
2-Methyl-3-buten-2-ol	0.02	0.01	Aliphatic alcohol
3-Methyl-2-butanone	tr	tr	Aliphatic ketone
Toluene	0.08	1.55*	Simple phenolic
Prenal	0.02	6.05*	Aliphatic aldehyde
Unknown	0.01	0.02	Alkene
Unknown	0.03	0.02	Unknown
Hashishene	0.82	48.90*	Monoterpene
Tricyclene	0.06	0.08	Monoterpene
α -Thujene	1.46	[1.55]*	Monoterpene
α -Pinene	48.17	[48.90]*	Monoterpene
Unknown	0.06	0.08	Monoterpene
Camphene	0.95*	0.94	Monoterpene
α -Fenchene	[0.95]*	0.01	Monoterpene
Thuja-2,4(10)-diene	0.62	5.36*	Monoterpene
meta-Cymene	0.11	0.16*	Monoterpene
β -Pinene	7.78*	2.93	Monoterpene
Sabinene	[7.78]*	[5.36]*	Monoterpene
Pseudolimonene isomer	0.04	0.02	Monoterpene
6-Methyl-5-hepten-2-one	0.14*	0.03	Aliphatic ketone
Dehydro-1,8-cineole	[0.14]*	0.10	Monoterpenic ether
Myrcene	3.12	3.16*	Monoterpene
6-Methyl-5-hepten-2-ol	0.03	0.03	Aliphatic alcohol
2-Carene	0.02	0.02	Monoterpene
Pseudolimonene	0.93*	0.27	Monoterpene
α -Phellandrene	[0.93]*	0.79	Monoterpene
ortho-Methylanisole	1.06*	0.10	Simple phenolic
Δ 3-Carene	[1.06]*	0.97	Monoterpene
α -Terpinene	0.16	[0.16]*	Monoterpene
ortho-Cymene	0.03	2.10*	Simple phenolic
para-Cymene	2.10	[2.10]*	Monoterpene
1,8-Cineole	6.88*	0.51*	Monoterpenic ether
Limonene	[6.88]*	[6.05]*	Monoterpene
β -Phellandrene	[6.88]*	[0.51]*	Monoterpene
Methyl octyl ether	[6.88]	[3.16]*	Aliphatic ether
Cymene analog	0.06	0.04	Monoterpene
(Z)- β -Ocimene	0.62	0.59	Monoterpene
Unknown	0.04		Unknown
(E)- β -Ocimene	0.24	0.24	Monoterpene
γ -Terpinene	0.29	0.31	Monoterpene
cis-Sabinene hydrate	0.01	0.01	Monoterpenic alcohol
Unknown	0.05	0.06	Oxygenated monoterpene
cis-Linalool oxide (fur.)	0.03	0.01	Monoterpenic alcohol
Octanol	0.14	0.18	Aliphatic alcohol
Unknown	0.07	0.07*	Oxygenated monoterpene
Isoterpinolene	0.01	0.01	Monoterpene
Terpinolene	0.20*	0.10	Monoterpene
para-Cymenene	[0.20]*	0.16*	Monoterpene
trans-Linalool oxide (fur.)	0.05	0.11*	Monoterpenic alcohol

6,7-Epoxy-myrcene	0.04	0.06*	Monoterpenic ether
<i>trans</i> -Sabinene hydrate	0.02	0.01	Monoterpenic alcohol
Linalool	0.26*	0.16	Monoterpenic alcohol
α -Thujone	[0.26]*	[0.06]*	Monoterpenic ketone
Unknown	0.01	2.28*	Monoterpenic alcohol
Verbenol analog?	0.02	0.04	Monoterpenic alcohol
β -Thujone	0.09	[0.16]*	Monoterpenic ketone
<i>cis</i> -para-Menth-2-en-1-ol	0.07	0.04	Monoterpenic alcohol
α -Campholenal	0.35	0.35*	Monoterpenic aldehyde
<i>cis</i> -Limonene oxide	0.03	0.01	Monoterpenic ether
<i>trans</i> -Pinocarveol	0.86	0.82*	Monoterpenic alcohol
Camphor	0.25*	0.43*	Monoterpenic ketone
<i>cis</i> -Verbenol	[0.25]*	0.05	Monoterpenic alcohol
<i>trans</i> -Sabinol	[0.25]*	0.32*	Monoterpenic alcohol
<i>trans</i> -Verbenol	0.66	0.67	Monoterpenic alcohol
meta-Mentha-4,6-dien-8-ol	0.39	0.87*	Monoterpenic alcohol
Unknown	0.04*		Oxygenated monoterpene
Sabinaketon	[0.04]*	0.05	Normonoterpenic ketone
Pinocamphone	0.09	[0.07]*	Monoterpenic ketone
Pinocarvone	0.06	0.04	Monoterpenic ketone
Borneol	0.11	[0.32]*	Monoterpenic alcohol
α -Phellandren-8-ol	0.88	0.89	Monoterpenic alcohol
<i>cis</i> -Sabinol	0.09*	0.04*	Monoterpenic alcohol
Umbellulone	[0.09]*	0.06	Monoterpenic ketone
Terpinen-4-ol	0.55	0.56	Monoterpenic alcohol
meta-Cymen-8-ol	0.01	0.02	Monoterpenic alcohol
Cryptone	0.04	[0.82]*	Normonoterpenic ketone
para-Cymen-8-ol	0.21	0.19	Monoterpenic alcohol
α -Terpineol	0.30	[0.32]*	Monoterpenic alcohol
Myrtenal	0.26	0.44*	Monoterpenic aldehyde
Myrtenol	0.31	0.30	Monoterpenic alcohol
α -Phellandrene epoxide	0.07	0.09	Monoterpenic ether
Verbenone	0.62	0.60	Monoterpenic ketone
<i>trans</i> -Piperitol	0.05	0.42*	Monoterpenic alcohol
Octyl acetate	1.42	1.27*	Aliphatic ester
<i>trans</i> -Carveol	[1.42]	0.28*	Monoterpenic alcohol
<i>cis</i> -Carveol	0.05	0.05	Monoterpenic alcohol
Methyl decyl ether	1.34	1.39	Aliphatic ether
Cuminal	0.04	0.12*	Monoterpenic aldehyde
Carvone	0.12	0.11*	Monoterpenic ketone
Carvotanacetone	0.02	0.01	Monoterpenic ketone
Piperitone	0.01	0.01	Monoterpenic ketone
Unknown	0.03	0.03	Unknown
<i>trans</i> -Sabinene hydrate acetate	0.05	0.02	Monoterpenic ester
Linalyl acetate	0.02	0.04	Monoterpenic ester
3,5-Dimethoxytoluene	0.10	[0.28]*	Simple phenolic
Unknown	0.06		Oxygenated monoterpene
Unknown	0.01		Unknown
Decanol	0.09	0.13	Aliphatic alcohol
Bornyl acetate	0.42	0.50	Monoterpenic ester
para-Cymen-7-ol	0.03	0.03	Monoterpenic alcohol
Thymol	0.02	0.03	Monoterpenic alcohol

<i>cis</i> -Terpin hydrate?	0.07		Monoterpenic alcohol
Carvacrol	0.05	0.05	Monoterpenic alcohol
Unknown	0.02		Unknown
Unknown	0.01	0.07	Monoterpenic alcohol
Myrtenyl acetate	0.01	0.18*	Monoterpenic ester
Methyl undecyl ether	0.02	[0.35]*	Aliphatic ether
Bicycloelemene	0.01	0.01	Sesquiterpene
Unknown	0.02		Unknown
α -Cubebene	0.14*	[0.11]*	Sesquiterpene
α -Terpinyl acetate	[0.14]*	0.05	Monoterpenic ester
Cyclosativene I	0.03	[0.35]*	Sesquiterpene
Cyclosativene II	0.04	[0.35]*	Sesquiterpene
α -Ylangene	0.02	[1.27]*	Sesquiterpene
α -Copaene	0.38	[0.43]*	Sesquiterpene
β -Bourbonene	0.40	0.46	Sesquiterpene
β -Cubebene	0.13*	0.06	Sesquiterpene
Geranyl acetate	[0.13]*	[0.12]*	Monoterpenic ester
β -Elemene	0.94	[2.28]*	Sesquiterpene
β -Caryophyllene	1.34	[2.28]*	Sesquiterpene
β -Copaene	0.06	0.05	Sesquiterpene
<i>trans</i> - α -Bergamotene	0.09	[2.28]*	Sesquiterpene
6,9-Guaiadiene	0.19	[0.44]*	Sesquiterpene
<i>trans</i> -Muuro-la-3,5-diene	0.09	0.03	Sesquiterpene
α -Humulene	0.43	[0.87]*	Sesquiterpene
allo-Aromadendrene	0.01	0.03	Sesquiterpene
γ -Muuro-lene	0.09	[0.18]*	Sesquiterpene
<i>trans</i> -Cadina-1(6),4-diene	0.23	0.19	Sesquiterpene
Germacrene D	0.12	0.12	Sesquiterpene
β -Selinene	0.42	0.41*	Sesquiterpene
<i>trans</i> -Muuro-la-4(15),5-diene	0.02	0.09	Sesquiterpene
δ -Selinene	0.11	0.03	Sesquiterpene
α -Selinene	0.40	0.35	Sesquiterpene
Germacrene A	0.12*	[0.42]*	Sesquiterpene
α -Muuro-lene	[0.12]*	[0.11]*	Sesquiterpene
δ -Amorphene	0.03	[0.41]*	Sesquiterpene
Cubebol	0.40*	0.12*	Sesquiterpenic alcohol
γ -Cadinene	[0.40]*	[0.42]*	Sesquiterpene
δ -Cadinene	0.70	0.65	Sesquiterpene
<i>trans</i> -Cadina-1,4-diene	0.04	0.05	Sesquiterpene
α -Cadinene	0.03	[0.04]*	Sesquiterpene
α -Elemol	0.09	0.08	Sesquiterpenic alcohol
Germacrene B	0.10	0.11	Sesquiterpene
Elemicin	0.01	0.03*	Phenylpropanoid
Palustrol	0.01	0.01	Sesquiterpenic alcohol
Unknown	0.02		Oxygenated sesquiterpene
Caryophyllenyl alcohol	0.03	0.03	Sesquiterpenic alcohol
Spathulenol	0.08*	0.03	Sesquiterpenic alcohol
Germacrene D-4-ol	[0.08]*	0.06	Sesquiterpenic alcohol
Caryophyllene oxide	0.36*	0.36	Sesquiterpenic ether
Caryophyllene oxide isomer	[0.36]*	0.04	Sesquiterpenic ether
Viridiflorol	1.11	1.14	Sesquiterpenic alcohol
Copaborneol	0.07	0.26*	Sesquiterpenic alcohol

Humulene epoxide II	0.08	0.11	Sesquiterpenic ether
10-epi-Cubenol	0.22		Sesquiterpenic alcohol
1-epi-Cubenol	0.07	0.07	Sesquiterpenic alcohol
τ -Muurolol	0.28*	0.04*	Sesquiterpenic alcohol
τ -Cadinol	[0.28]*	[0.26]*	Sesquiterpenic alcohol
α -Cadinol	0.04	[0.03]*	Sesquiterpenic alcohol
Dihydroeudesmol	0.03	[0.04]*	Sesquiterpenic alcohol
<i>cis</i> -Calamene-10-ol	0.02	0.11	Sesquiterpenic alcohol
(3 <i>Z</i>)-Caryophylla-3,8(13)-dien-5 β -ol	0.04	0.06	Sesquiterpenic alcohol
Shyobunol	0.02	0.01	Sesquiterpenic alcohol
α -Phellandrene dimer II	0.12	[0.12]*	Diterpene
α -Phellandrene dimer III	0.03	0.01	Diterpene
α -Phellandrene dimer IV	0.02	0.09	Diterpene
Unknown	0.02		Unknown
(3 <i>E</i>)-Cembrene A	0.16		Diterpene
Cembrene C	0.09*		Diterpene
Verticilla-4(20),7,11-triene	[0.09]*	0.09	Diterpene
Incensole	0.73*	0.11	Diterpenic alcohol
Serratol	[0.73]*	0.67	Diterpenic alcohol
Total identified	97.65%	96.20%	

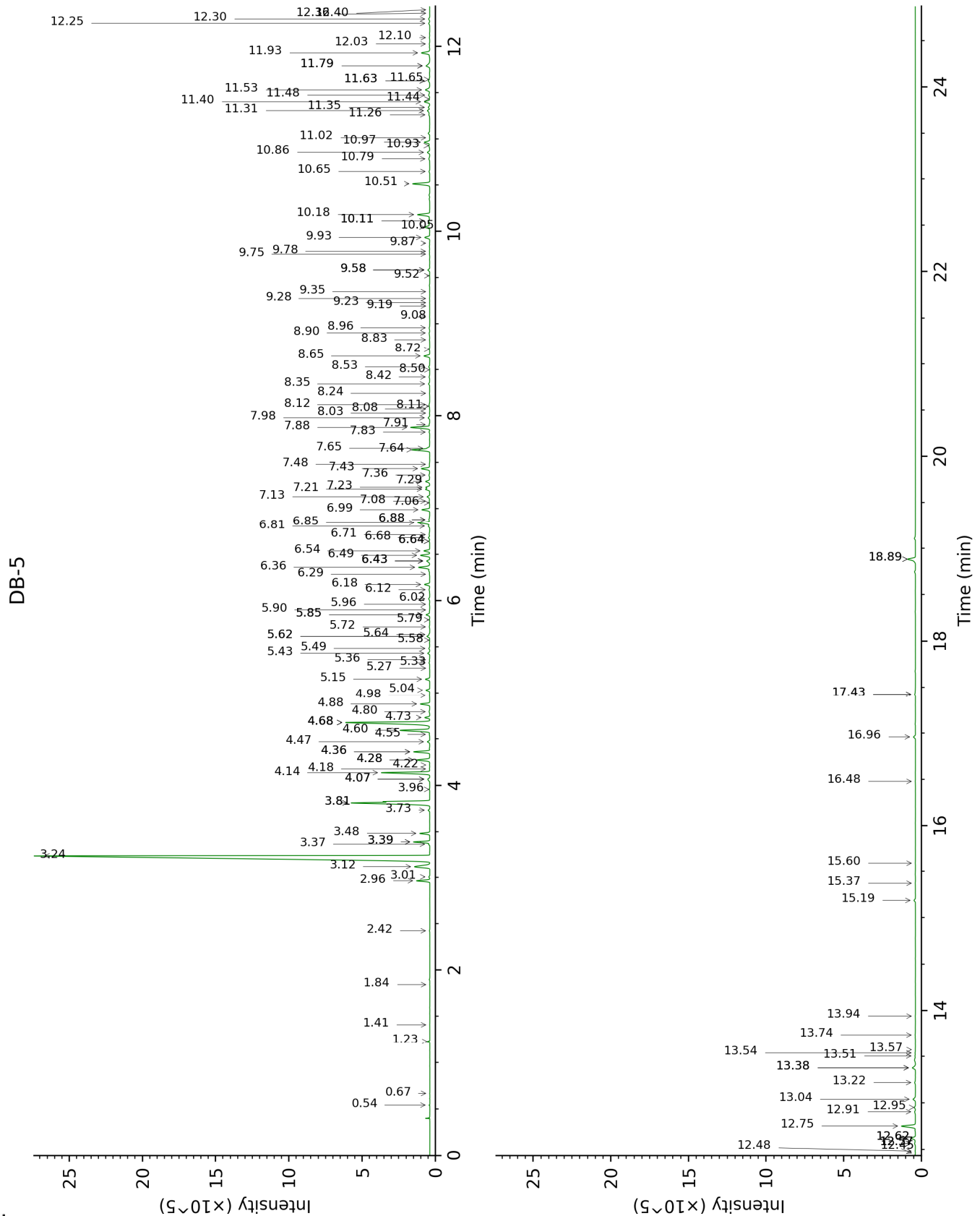
*: Two or more compounds are coeluting on this column

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

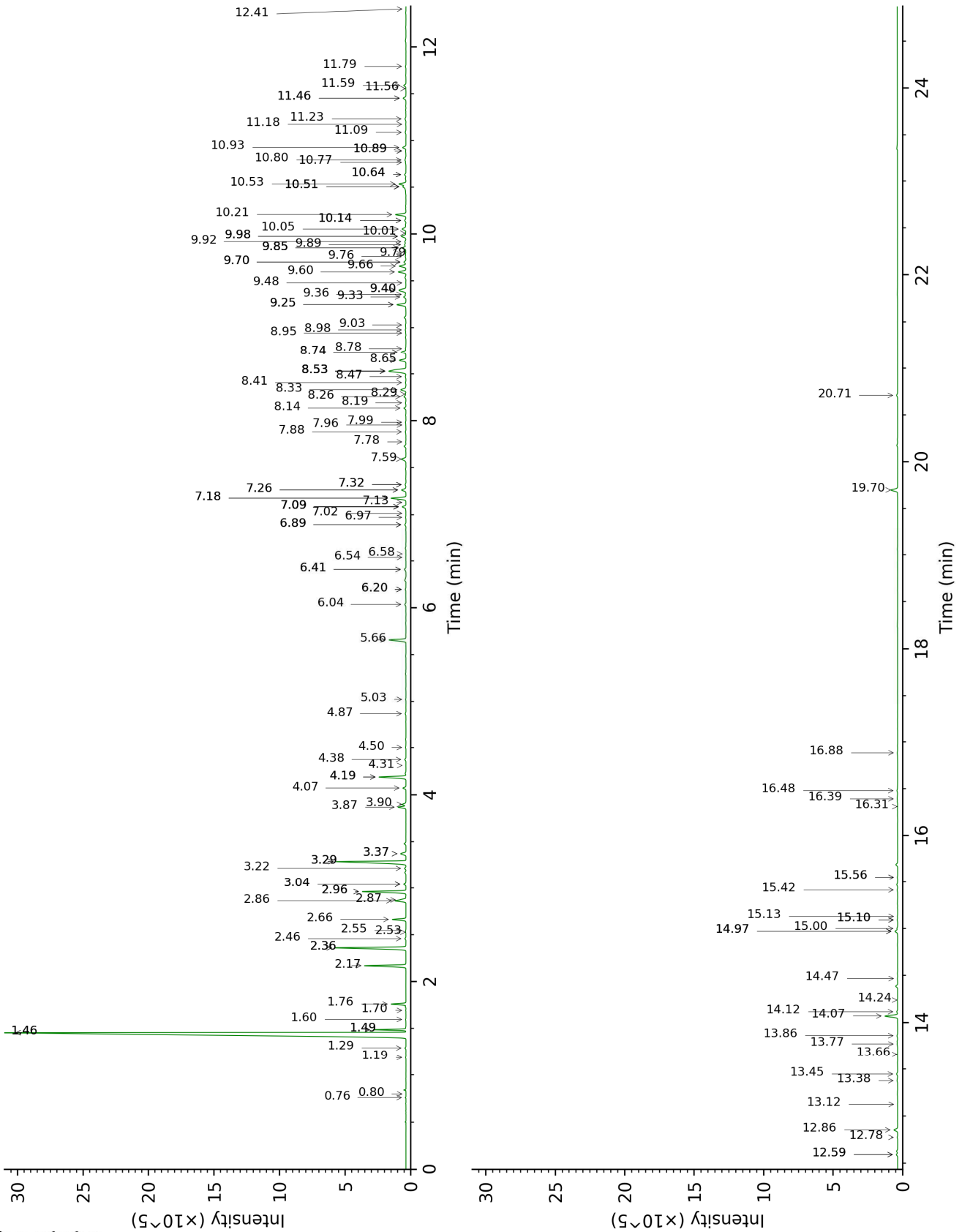
tr: The compound has been detected below 0.005% of total signal.

Note: no correction factor was applied

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DB-WAX



FULL ANALYSIS DATA

Identification	Column DB-5			Column DB-WAX		
	R.T	R.I	%	R.T	R.I	%
2-Methyl-3-buten-2-ol	0.54	604	0.02	1.60	1014	0.01
3-Methyl-2-butanone	0.67	645	tr	0.80	896	tr
Toluene	1.23	756	0.08	1.49*	1004	1.55
Prenal	1.41	780	0.02	3.29*	1161	6.05
Unknown [m/z 109, 67 (32), 81 (14), 41 (12), 124 (10)]	1.84	826	0.01	0.76	884	0.02
Unknown [m/z 79, 78 (45), 91 (28), 77 (28), 41 (13), 80 (12), 107 (11)... 122 (1)]	2.42	873	0.03	1.19	960	0.02
Hashishene	2.96	914	0.82	1.46*	1000	48.90
Tricyclene	3.01	917	0.06	1.29	976	0.08
α -Thujene	3.12	925	1.46	1.49*	1004	[1.55]
α -Pinene	3.24	932	48.17	1.46*	1000	[48.90]
Unknown [m/z 91, 92 (47), 65 (11)... 134 (1)]	3.37	941	0.06	2.46	1096	0.08
Camphene	3.39*	942	0.95	1.76	1029	0.94
α -Fenchene	3.39*	942	[0.95]	1.70	1023	0.01
Thuja-2,4(10)-diene	3.48	948	0.62	2.36*	1086	5.36
meta-Cymene	3.73	965	0.11	3.04*	1142	0.16
β -Pinene	3.81*†	970	7.78	2.17	1068	2.93
Sabinene	3.81*†	970	[7.78]	2.36*	1086	[5.36]
Pseudolimonene isomer	3.96	980	0.04	2.55	1103	0.02
6-Methyl-5-hepten-2-one	4.07*	987	0.14	5.02	1296	0.03
Dehydro-1,8-cineole	4.07*	987	[0.14]	3.22	1156	0.10
Myrcene	4.14	992	3.12	2.96*	1136	3.16
6-Methyl-5-hepten-2-ol	4.18	994	0.03	6.97	1429	0.03
2-Carene	4.22	997	0.02	2.53	1102	0.02
Pseudolimonene	4.28*	1000	0.93	2.87	1129	0.27
α -Phellandrene	4.28*	1000	[0.93]	2.86	1128	0.79
ortho-Methylanisole	4.36*	1006	1.06	6.04	1360	0.10
Δ 3-Carene	4.36*	1006	[1.06]	2.66	1112	0.97
α -Terpinene	4.47	1013	0.16	3.04*	1142	[0.16]
ortho-Cymene	4.55	1018	0.03	4.19*	1232	2.10
para-Cymene	4.60	1021	2.10	4.19*	1232	[2.10]
1,8-Cineole	4.68*†	1026	6.88	3.37*	1168	0.51

Limonene	4.68*†	1026	[6.88]	3.29*	1161	[6.05]
β-Phellandrene	4.68*†	1026	[6.88]	3.37*	1168	[0.51]
Methyl octyl ether	4.73†	1029	[6.88]	2.96*	1136	[3.16]
Cymene analog	4.80	1033	0.06	4.50	1256	0.04
(Z)-β-Ocimene	4.88	1039	0.62	3.87	1208	0.59
Unknown [m/z 109, 43 (57), 91 (28), 67 (25), 93 (24), 95 (22), 77 (21), 137 (21), 41 (17), 79 (14)...]	4.98	1045	0.04			
(E)-β-Ocimene	5.04	1048	0.24	4.07	1223	0.24
γ-Terpinene	5.15	1056	0.29	3.90	1210	0.31
cis-Sabinene hydrate	5.27	1063	0.01	7.02	1432	0.01
Unknown [m/z 79, 93 (60), 43 (40), 94 (35), 137 (33), 77 (26), 91 (20), 152 (18)]	5.33	1067	0.05	4.86	1284	0.06
cis-Linalool oxide (fur.)	5.36	1069	0.03	6.58	1399	0.01
Octanol	5.43	1074	0.14	8.26	1527	0.18
Unknown [m/z 43, 94 (63), 109 (61), 59 (55), 79 (51)...152 (2)]	5.49	1077	0.07	7.32*	1455	0.07
Isoterpinolene	5.58	1082	0.01	4.31	1241	0.01
Terpinolene	5.62*	1085	0.20	4.38	1246	0.10
para-Cymenene	5.62*	1085	[0.20]	6.41*	1387	0.16
trans-Linalool oxide (fur.)	5.64	1086	0.05	6.89*	1423	0.11
6,7-Epoxyterpinolene	5.72	1092	0.04	6.20*	1372	0.06
trans-Sabinene hydrate	5.79	1096	0.02	7.96	1503	0.01
Linalool	5.85*	1100	0.26	8.14	1517	0.16
α-Thujone	5.85*	1100	[0.26]	6.20*	1372	[0.06]
Unknown [m/z 119, 109 (94), 43 (61), 95 (56), 91 (48), 77 (32), 152 (32), 137 (31), 134 (24)]	5.90	1103	0.01	8.53*	1548	2.28
Verbenol analog?	5.96	1107	0.02	8.41	1538	0.04
β-Thujone	6.02	1111	0.09	6.41*	1387	[0.16]
cis-para-Menth-2-en-1-ol	6.12	1117	0.07	8.19	1522	0.04
α-Campholenal	6.18	1121	0.35	7.09*	1438	0.35
cis-Limonene oxide	6.29	1128	0.03	6.54	1397	0.01
trans-Pinocarveol	6.36	1133	0.86	9.25*	1604	0.82
Camphor	6.43*	1137	0.25	7.26*	1451	0.43

<i>cis</i> -Verbenol	6.43*	1137	[0.25]	9.36	1613	0.05
<i>trans</i> -Sabinol	6.43*	1137	[0.25]	9.85*	1654	0.32
<i>trans</i> -Verbenol	6.49	1141	0.66	9.60	1633	0.67
meta-Mentha-4,6-dien-8-ol	6.54	1144	0.39	9.40*	1617	0.87
Unknown [m/z 109, 81 (39), 41 (38), 95 (24)... 152 (1)]	6.64*	1151	0.04			
Sabinaketone	6.64*	1151	[0.04]	8.78	1567	0.05
Pinocamphone	6.68	1154	0.09	7.32*	1455	[0.07]
Pinocarvone	6.71	1156	0.06	7.99	1505	0.04
Borneol	6.81	1162	0.11	9.85*	1654	[0.32]
α -Phellandren-8-ol	6.85	1164	0.88	10.21	1683	0.89
<i>cis</i> -Sabinol	6.88*	1166	0.09	10.89*	1740	0.04
Umbellulone	6.88*	1166	[0.09]	8.98	1583	0.06
Terpinen-4-ol	6.99	1173	0.55	8.65	1557	0.56
meta-Cymen-8-ol	7.06	1178	0.01	11.56	1797	0.02
Cryptone	7.08	1179	0.04	9.25*	1604	[0.82]
para-Cymen-8-ol	7.13	1182	0.21	11.59	1800	0.19
α -Terpineol	7.21	1188	0.30	9.85*	1654	[0.32]
Myrtenal	7.23	1189	0.26	8.74*	1564	0.44
Myrtenol	7.30	1193	0.31	10.93	1744	0.30
α -Phellandrene epoxide	7.36	1198	0.07	11.09	1757	0.09
Verbenone	7.43	1202	0.62	9.66	1638	0.60
<i>trans</i> -Piperitol	7.48	1205	0.05	10.50*	1707	0.42
Octyl acetate	7.64†	1216	1.42	7.18*	1444	1.27
<i>trans</i> -Carveol	7.65†	1217	[1.42]	11.46*	1788	0.28
<i>cis</i> -Carveol	7.83	1229	0.05	11.80	1818	0.05
Methyl decyl ether	7.88	1232	1.34	5.66	1333	1.39
Cuminal	7.91	1234	0.04	10.64*	1719	0.12
Carvone	7.98	1240	0.12	10.14*	1677	0.11
Carvotanacetone	8.03	1243	0.02	9.48	1623	0.01
Piperitone	8.08	1246	0.01	10.01	1666	0.01
Unknown [m/z 43, 97 (69), 107 (46), 41 (28), 55 (21), 109 (20)...]	8.11	1248	0.03	11.18	1764	0.03
<i>trans</i> -Sabinene hydrate acetate	8.12	1249	0.05	7.78	1489	0.02
Linalyl acetate	8.24	1258	0.02	8.29	1529	0.04
3,5-Dimethoxytoluene	8.35	1265	0.10	11.46*	1788	[0.28]
Unknown [m/z 109, 41 (22), 81 (14), 43 (11)... 152 (4)]	8.42	1270	0.06			
Unknown [m/z 83, 69 (66), 43 (65), 98 (38), 41 (36), 55 (32)...]	8.50	1275	0.01			

Decanol	8.53	1277	0.09	10.80	1732	0.13
Bornyl acetate	8.65	1285	0.42	8.33	1532	0.50
para-Cymen-7-ol	8.72	1290	0.03	14.24	2044	0.03
Thymol	8.83	1298	0.02	15.13	2131	0.03
<i>cis</i> -Terpin hydrate?	8.90	1303	0.07			
Carvacrol	8.96	1307	0.05	15.42	2159	0.05
Unknown [m/z 69, 41 (75), 55 (58), 83 (33), 121 (33)...]	9.08	1311	0.02			
Unknown [m/z 97, 112 (92), 83 (62), 43 (44), 41 (25)... 170? (4)]	9.19	1320	0.01	15.00	2118	0.07
Myrtenyl acetate	9.23	1322	0.01	9.70*	1641	0.18
Methyl undecyl ether	9.28	1326	0.02	7.09*	1438	[0.35]
Bicycloelemene	9.35	1331	0.01	7.13	1441	0.01
Unknown [m/z 133, 105 (45), 91 (38), 119 (36)... 150 (3)]	9.52	1343	0.02			
α -Cubebene	9.58*	1347	0.14	6.89*	1423	[0.11]
α -Terpinyl acetate	9.58*	1347	[0.14]	9.76	1646	0.05
Cyclosativene I	9.75	1360	0.03	7.09*	1438	[0.35]
Cyclosativene II	9.78	1362	0.04	7.09*	1438	[0.35]
α -Ylangene	9.87	1368	0.02	7.18*	1444	[1.27]
α -Copaene	9.93	1372	0.38	7.26*	1451	[0.43]
β -Bourbonene	10.05	1380	0.40	7.59	1476	0.46
β -Cubebene	10.11*	1385	0.13	7.88	1497	0.06
Geranyl acetate	10.11*	1385	[0.13]	10.64*	1719	[0.12]
β -Elemene	10.18	1390	0.94	8.53*	1548	[2.28]
β -Caryophyllene	10.51	1414	1.34	8.53*	1548	[2.28]
β -Copaene	10.65	1424	0.06	8.47	1543	0.05
<i>trans</i> - α -Bergamotene	10.79	1435	0.09	8.53*	1548	[2.28]
6,9-Guaiadiene	10.86	1440	0.19	8.74*	1564	[0.44]
<i>trans</i> -Muurolo-3,5-diene	10.93	1445	0.09	8.94	1580	0.03
α -Humulene	10.97	1448	0.43	9.40*	1617	[0.87]
allo-Aromadendrene	11.02	1452	0.01	9.03	1587	0.03
γ -Muurolole	11.26	1470	0.09	9.70*	1641	[0.18]
<i>trans</i> -Cadin-1(6),4-diene	11.31	1474	0.23	9.33	1611	0.19
Germacrene D	11.34	1476	0.12	9.89	1656	0.12
β -Selinene	11.40	1481	0.42	9.98*	1664	0.41
<i>trans</i> -Muurolo-4(15),5-diene	11.44	1483	0.02	9.92	1659	0.09
δ -Selinene	11.48	1486	0.11	9.79	1648	0.03
α -Selinene	11.53	1490	0.40	10.05	1670	0.35
Germacrene A	11.63*	1498	0.12	10.50*	1707	[0.42]

α -Muurolene	11.63*	1498	[0.12]	10.14*	1677	[0.11]
δ -Amorphene	11.65	1499	0.03	9.98*	1664	[0.41]
Cubebol	11.79*	1510	0.40	12.59*	1889	0.12
γ -Cadinene	11.79*	1510	[0.40]	10.50*	1707	[0.42]
δ -Cadinene	11.93	1521	0.70	10.53	1710	0.65
<i>trans</i> -Cadina-1,4-diene	12.03	1528	0.04	10.77	1730	0.05
α -Cadinene	12.10	1534	0.03	10.89*	1740	[0.04]
α -Elemol	12.25	1546	0.09	14.12	2031	0.08
Germacrene B	12.30	1550	0.10	11.24	1769	0.11
Elemicin	12.36	1555	0.01	15.56*	2173	0.03
Palustrol	12.40	1558	0.01	12.41	1873	0.01
Unknown [m/z 152, 109 (61), 43 (21), 137 (16), 151 (16)... 222 (6)]	12.45	1562	0.02			
Caryophyllenyl alcohol	12.48	1564	0.03	13.66	1988	0.03
Spathulenol	12.57*	1571	0.08	14.47	2066	0.03
Germacrene D-4-ol	12.57*	1571	[0.08]	13.77	1998	0.06
Caryophyllene oxide	12.62*	1575	0.36	12.86	1913	0.36
Caryophyllene oxide isomer	12.62*	1575	[0.36]	12.78	1906	0.04
Viridiflorol	12.75	1586	1.11	14.07	2027	1.14
Copaborneol	12.91	1598	0.07	14.97*	2115	0.26
Humulene epoxide II	12.95	1602	0.08	13.45	1968	0.11
10-epi-Cubenol	13.04	1608	0.22			
1-epi-Cubenol	13.22	1623	0.07	13.86	2007	0.07
τ -Muurolol	13.38*	1636	0.28	15.10*	2127	0.04
τ -Cadinol	13.38*	1636	[0.28]	14.97*	2115	[0.26]
α -Cadinol	13.50	1647	0.04	15.56*	2173	[0.03]
Dihydroeudesmol	13.54	1650	0.03	15.10*	2127	[0.04]
<i>cis</i> -Calamenen-10-ol	13.57	1653	0.02	16.48	2269	0.11
(3 <i>Z</i>)-Caryophylla-3,8(13)-dien-5 β -ol	13.74	1666	0.04	16.88	2311	0.06
Shyobunol	13.94	1683	0.02	16.31	2251	0.01
α -Phellandrene dimer II	15.19	1790	0.12	12.59*	1889	[0.12]
α -Phellandrene dimer III	15.37	1807	0.03	13.12	1938	0.01
α -Phellandrene dimer IV	15.60	1827	0.02	13.38	1962	0.09
Unknown [m/z 43, 81 (45), 137 (39), 71 (39), 93 (33), 95 (32)...]	16.48	1907	0.02			
(3 <i>E</i>)-Cembrene A	16.96	1953	0.16			
Cembrene C	17.42*	1997	0.09			

Verticilla-4(20),7,11-triene	17.42*	1997	[0.09]	16.39	2260	0.09
Incensole	18.88*	2143	0.73	20.71	2752	0.11
Serratol	18.88*	2143	[0.73]	19.70	2630	0.67
Total identified	97.65%			96.20%		
Total reported	98.09%			96.47%		

*: 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