



Carrot Seed

Daucus Carota

Batch No. CA-59060

Canada

Monoterpenes 72.46%

sabinene	39.09
α-pinene	16.13
myrcene	4.30
β-pinene	3.68
limonene	3.09
γ terpinene	2.06
α-terpinene	1.03
camphene	0.78
(Z)-β-ocimene	0.76
terpinolene	0.63
α-thujene	0.35
(E)-β-ocimene	0.23
para cymene	0.18
α-phellandrene	0.06
tricyclene	0.03
cosmene isomer I	0.02
para-Mentha-1,3,8-triene	0.02
allo-Ocimene	0.01
thuja-2,4(10)-diene	0.01

Monoterpenols 3.12%

terpinene-4-ol	1.94
linalool	0.47
α-terpineol	0.15
cis-sabinene hydrate	0.14
cis-para-Menth-2-en-1-ol	0.10
trans-para-Menth-2-en-1-ol	0.08
trans-sabinene hydrate	0.06
trans-piperitol	0.05
borneol	0.03
cis-piperitol	0.03
para-mentha-1,4-dien-7-ol	0.03
endo-fenchol	0.01
geraniol	0.01
meta-cymen-8-ol	0.01
para-Mentha-1,5-dien-7-ol	0.01

Aldehydes 0.06%

(2E)-nonenal	0.05
phellandral	0.01

Sesquiterpenes 10.13%

β-caryophyllene	2.04
germacrene D	1.76
β-bisabolene	1.51
trans-β-farnesene	0.81
β-selinene	0.67
bicyclogermacrene	0.41
δ-cadinene	0.39
α-humulene	0.27
α-selinene	0.27
cis-α-bergamotene	0.19
α-murolene	0.18
10-epi-β-acoradiene	0.18
γ muurolene	0.15
β-elemene	0.14
trans-α-bergamotene	0.13
α-copaene	0.13
sesquisabinene B	0.13
(E)-α-bisabolene	0.11
germacrene B	0.08
(E)-γ-bisabolene	0.07
sesquisabinene A	0.07
β-cubebene	0.07
γ-cadinene	0.06
δ-elemene	0.06
β-bourbonene	0.05
spirovetiva-1(10),7(11)-diene	0.05
α-longipinene	0.03
viridiflorene	0.03
daucene	0.02
trans-cadina-1,4-diene	0.02
β-copaene	0.02
sesquithujene	0.01
β-longipinene	0.01
cis-β-bergamotene	0.01

Esters 8.52%

geranyl acetate	5.03
bornyl acetate	3.22
α-terpinyl acetate	0.14
cis-Chrysanthenyl acetate	0.06
neryl acetate	0.03
trans-pinocarvyl acetate	0.02
4-thujen-2a-yl acetate	0.01
myrtenyl acetate	0.01

Sesquiterpenols 2.45%

carotol	1.00
juniper camphor	0.38
11->H-Himachal-4-en-1-B-ol isome	0.27
shyobunol	0.22
α-cadinol	0.15
α-bisabolol	0.13
germacrene D-4-ol	0.06
τ-cadinol	0.06
spathulenol	0.04
himachalol	0.03
1-epi-cubenol	0.02
hinesol	0.02
10-epi-cubenol	0.02
α-murolol	0.02
(3Z)-Caryophylla-3,8(13)-dien-5B-c	0.02
junenol	0.01

Ethers 0.47%

1,8 cineole + β-phellandrene	0.37
caryophyllene oxide	0.05
epoxyterpinolene	0.02
thymol methyl ether	0.01
isocaryophyllene epoxide B	0.01
caryophyllene oxide isomer	0.01

Phenols 0.11%

methyl (E)-isoeugenol	0.08
methyleugenol	0.03

Other 0.04%

4-Hydroxy-4-methylcyclohex-2-enone	0.01
tridecane	0.03
unknown	0.55

Raw Material: Carrot Seed
 INCI Name: Daucus Carota Fruit Oil
 Production Steam Dist., Canada
 Date of Analysis: 11/12/2019

Date : November 12, 2019

CERTIFICATE OF ANALYSIS – GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 19J29-ALK02-1-CC

Customer identification : BDACAGRCAN09TC – Daucus carota - Canada

Type : Essential oil

Source : *Daucus carota* ct. Sabinene

Customer : Aliksir

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 : Sylvain Mercier, M. Sc., Chimiste

Analysis date : November 05, 2019

Checked and approved by :

Alexis St-Gelais, M. Sc., 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.

PHYSICOCHEMICAL DATA

Physical aspect: Faintly yellow liquid

Refractive index: 1.4734 ± 0.0003 (20 °C)

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	%	Classe
Tricyclene	0.03	Monoterpene
α -Thujene	0.35	Monoterpene
α -Pinene	16.13	Monoterpene
Camphene	0.78	Monoterpene
α -Fenchene	tr	Monoterpene
Thuja-2,4(10)-diene	0.01	Monoterpene
Sabinene	39.09	Monoterpene
β -Pinene	3.68	Monoterpene
Myrcene	4.30	Monoterpene
α -Phellandrene	0.06	Monoterpene
α -Terpinene	1.03	Monoterpene
para-Cymene	0.18	Monoterpene
Limonene	3.09	Monoterpene
1,8-Cineole	0.37*	Monoterpenic ether
β -Phellandrene	[0.37]*	Monoterpene
(Z)- β -Ocimene	0.76	Monoterpene
(E)- β -Ocimene	0.23	Monoterpene
γ -Terpinene	2.06	Monoterpene
cis-Sabinene hydrate	0.14	Monoterpenic alcohol
Terpinolene	0.63	Monoterpene
trans-Sabinene hydrate	0.06	Monoterpenic alcohol
Linalool	0.47	Monoterpenic alcohol
para-Mentha-1,3,8-triene	0.02	Monoterpene
endo-Fenchol	0.01	Monoterpenic alcohol
cis-para-Menth-2-en-1-ol	0.10	Monoterpenic alcohol
allo-Ocimene	0.01	Monoterpene
4-Hydroxy-4-methylcyclohex-2-enone	0.01	Aliphatic alcohol
Cosmene isomer I	0.02	Monoterpene
trans-para-Menth-2-en-1-ol	0.08	Monoterpenic alcohol
Epoxyterpinolene	0.02	Monoterpenic ether
Unknown	0.02	Unknown
(2E)-Nonenal	0.05	Aliphatic aldehyde
Borneol	0.03	Monoterpenic alcohol
Unknown	0.01	Oxygenated monoterpene
Terpinen-4-ol	1.94	Monoterpenic alcohol
meta-Cymen-8-ol	0.01	Monoterpenic alcohol
α -Terpineol	0.15	Monoterpenic alcohol
cis-Piperitol	0.03	Monoterpenic alcohol
para-Mentha-1,5-dien-7-ol	0.01	Monoterpenic alcohol
trans-Piperitol	0.05	Monoterpenic alcohol
Unknown	0.03	Oxygenated monoterpene
Thymol methyl ether	0.01	Monoterpenic ether
Unknown	0.03	Oxygenated monoterpene
Unknown	0.01	Oxygenated monoterpene
Geraniol	0.01	Monoterpenic alcohol
cis-Chrysanthenyl acetate	0.06	Monoterpenic ester
Phellandral	0.01	Monoterpenic aldehyde

4-Thujen-2 α -yl acetate	0.01	Monoterpenic ester
Bornyl acetate	3.22	Monoterpenic ester
<i>trans</i> -Pinocarvyl acetate	0.02	Monoterpenic ester
Unknown	0.17	Oxygenated monoterpene
Tridecane	0.03	Alkane
Myrtenyl acetate	0.01	Monoterpenic ester
para-Mentha-1,4-dien-7-ol	0.03	Monoterpenic alcohol
δ -Elemene	0.06	Sesquiterpene
α -Longipinene	0.03	Sesquiterpene
α -Terpinyl acetate	0.14	Monoterpenic ester
Neryl acetate	0.03	Monoterpenic ester
α -Copaene	0.13	Sesquiterpene
Daucene	0.02	Sesquiterpene
β -Bourbonene	0.05	Sesquiterpene
Geranyl acetate	5.03	Monoterpenic ester
β -Cubebene	0.07	Sesquiterpene
β -Elemene	0.14	Sesquiterpene
β -Longipinene	0.01	Sesquiterpene
Methyleugenol	0.03	Phenylpropanoid
Sesquithujene	0.01	Sesquiterpene
β -Caryophyllene	2.04	Sesquiterpene
<i>cis</i> - α -Bergamotene	0.19	Sesquiterpene
β -Copaene	0.02	Sesquiterpene
<i>trans</i> - α -Bergamotene	0.13	Sesquiterpene
Sesquisabinene A	0.07	Sesquiterpene
<i>cis</i> - β -Bergamotene?	0.01	Sesquiterpene
α -Humulene	0.27	Sesquiterpene
Unknown	0.15	Sesquiterpene
Sesquisabinene B	0.13	Sesquiterpene
(<i>E</i>)- β -Farnesene	0.81	Sesquiterpene
10-epi- β -Acoradiene	0.18	Sesquiterpene
γ -Murolene	0.15	Sesquiterpene
Germacrene D	1.76	Sesquiterpene
β -Selinene	0.67	Sesquiterpene
α -Selinene	0.27	Sesquiterpene
Bicyclogermacrene	0.41	Sesquiterpene
Viridiflorene	0.03	Sesquiterpene
α -Murolene	0.18	Sesquiterpene
Methyl (<i>E</i>)-isoeugenol	0.08	Phenylpropanoid
β -Bisabolene	1.51	Sesquiterpene
γ -Cadinene	0.06	Sesquiterpene
Spirovetiva-1(10),7(11)-diene	0.05	Sesquiterpene
δ -Cadinene	0.39	Sesquiterpene
<i>trans</i> -Cadina-1,4-diene	0.02	Sesquiterpene
(<i>E</i>)- γ -Bisabolene	0.07	Sesquiterpene
Unknown	0.10	Sesquiterpene
(<i>E</i>)- α -Bisabolene	0.11	Sesquiterpene
Isocaryophyllene epoxide B	0.01	Sesquiterpenic ether
Germacrene B	0.08	Sesquiterpene
Spathulenol	0.04	Sesquiterpenic alcohol
Germacrene D-4-ol	0.06	Sesquiterpenic alcohol
Caryophyllene oxide	0.05	Sesquiterpenic ether

Caryophyllene oxide isomer	0.01	Sesquiterpenic ether
Unknown	0.02	Oxygenated sesquiterpene
Carotol	1.00	Sesquiterpenic alcohol
Junenol	0.01	Sesquiterpenic alcohol
10-epi-Cubenol	0.02	Sesquiterpenic alcohol
Unknown	0.01	Oxygenated sesquiterpene
1-epi-Cubenol	0.02	Sesquiterpenic alcohol
Hinesol	0.02	Sesquiterpenic alcohol
11- α H-Himachal-4-en-1- β -ol isomer?	0.27	Sesquiterpenic alcohol
τ -Muurolol	tr	Sesquiterpenic alcohol
τ -Cadinol	0.06	Sesquiterpenic alcohol
Himachalol	0.03	Sesquiterpenic alcohol
α -Muurolol	0.02	Sesquiterpenic alcohol
α -Cadinol	0.15	Sesquiterpenic alcohol
(3Z)-Caryophylla-3,8(13)-dien-5 β -ol	0.02	Sesquiterpenic alcohol
α -Bisabolol	0.13	Sesquiterpenic alcohol
Shyobunol	0.22	Sesquiterpenic alcohol
Juniper camphor	0.38	Sesquiterpenic alcohol
Mint sulfide?	0.01	Sesquiterpenic sulfide
Neophytadiene	0.04	Diterpene
Consolidated total	97.95%	

*: 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

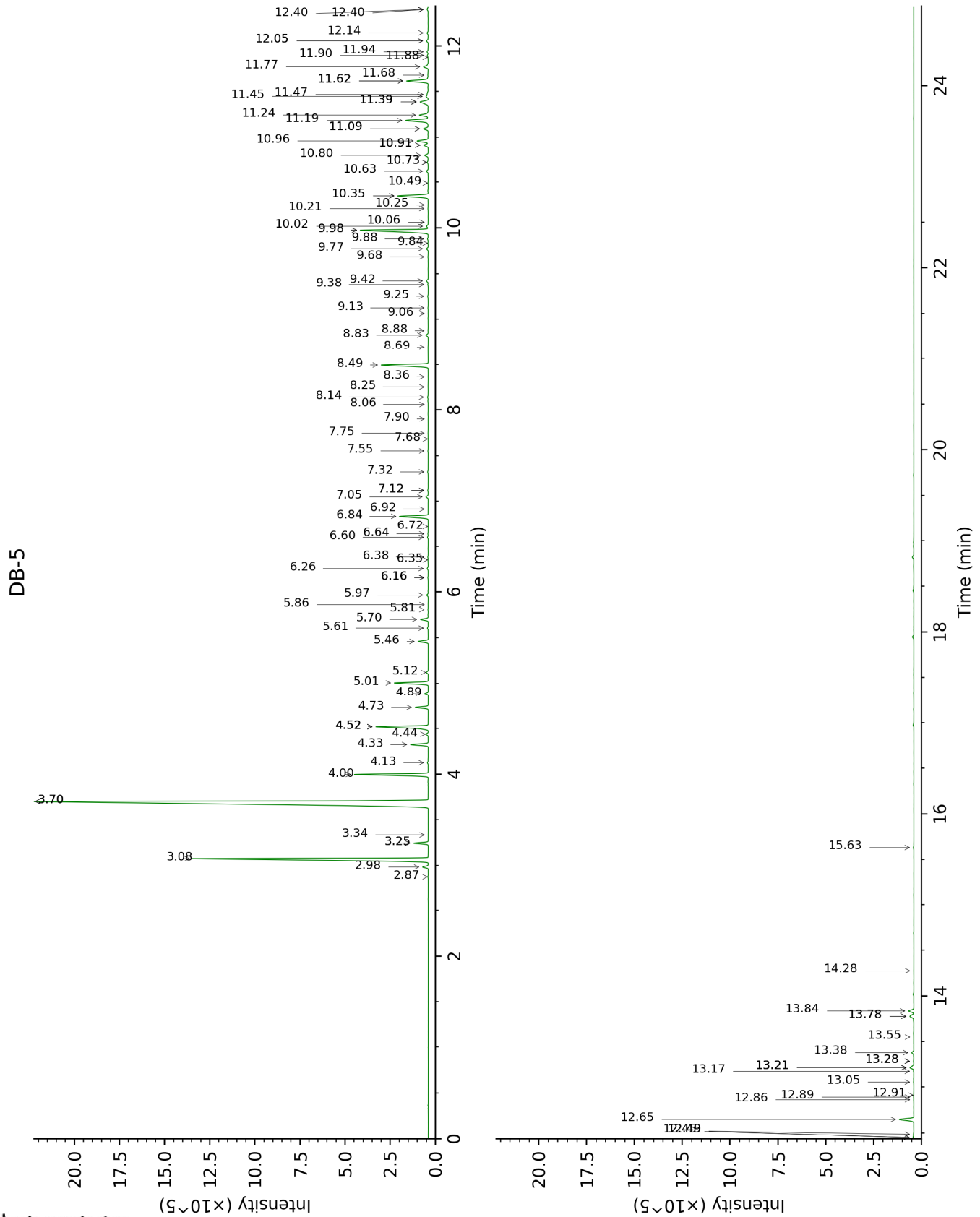
tr: The compound has been detected below 0.005% of total signal.

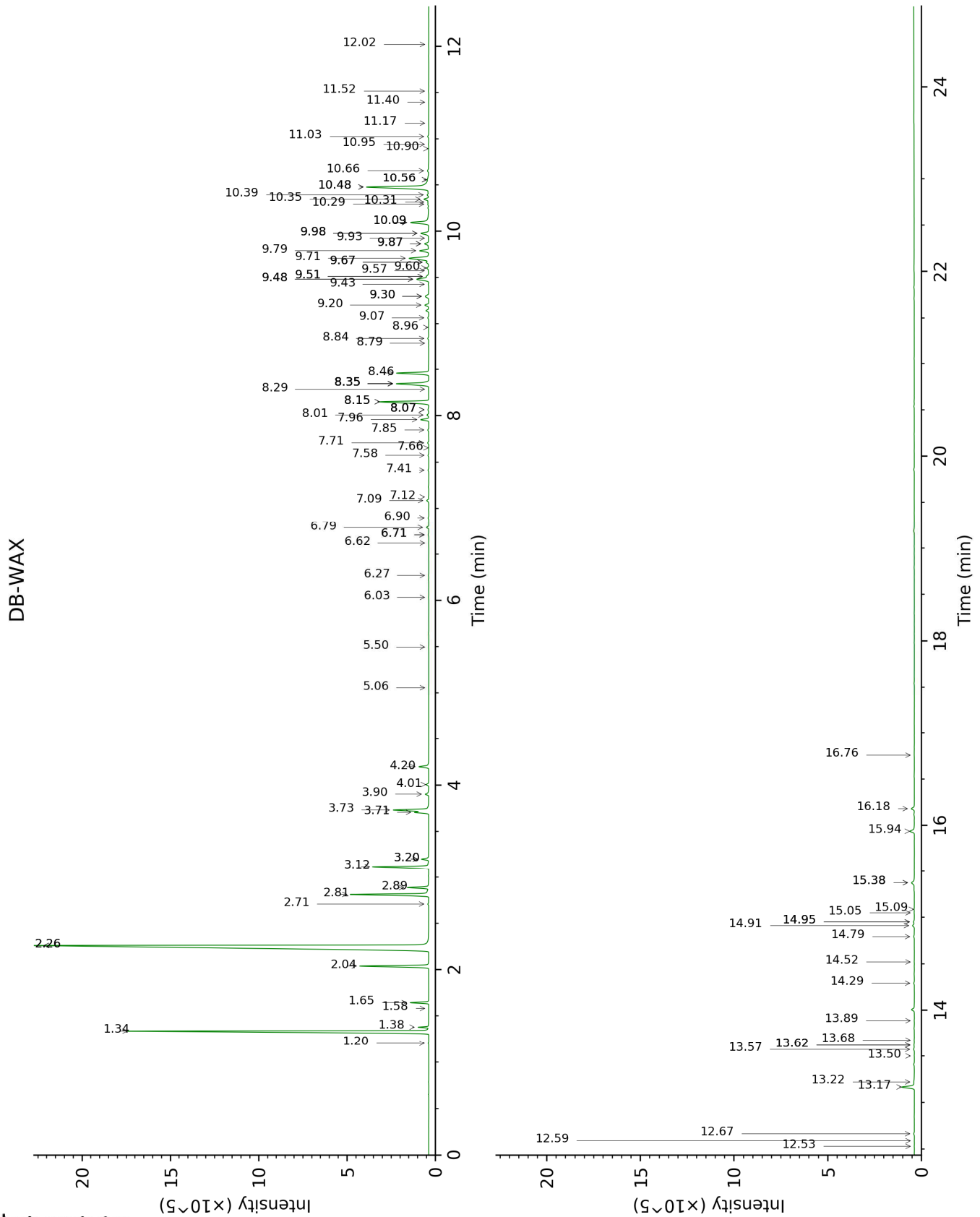
Note: no correction factor was applied

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	%
Tricyclene	2.87	918	0.03	1.20	974	0.02
α -Thujene	2.98	925	0.35	1.38	1002	0.43
α -Pinene	3.08	931	16.13	1.34	995	16.14
Camphene	3.25*	942	0.80	1.65	1029	0.78
α -Fenchene	3.25*	942	[0.80]	1.58	1022	tr
Thuja-2,4(10)-diene	3.34	948	0.01	2.26*	1089	39.59
Sabinene	3.70*	972	42.77	2.26*	1089	[39.59]
β -Pinene	3.70*	972	[42.77]	2.04	1067	3.68
Myrcene	4.00	992	4.30	2.81	1135	4.27
α -Phellandrene	4.13	1000	0.06	2.71	1127	0.05
α -Terpinene	4.32	1013	1.03	2.89	1141	1.10
para-Cymene	4.44	1020	0.18	4.01	1228	0.17
Limonene	4.52*	1026	3.47	3.12	1159	3.09
1,8-Cineole	4.52*	1026	[3.47]	3.20*	1166	0.40
β -Phellandrene	4.52*	1026	[3.47]	3.20*	1166	[0.40]
(Z)- β -Ocimene	4.73	1039	0.76	3.71	1206	0.68
(E)- β -Ocimene	4.89	1049	0.23	3.90	1220	0.25
γ -Terpinene	5.01	1056	2.06	3.73	1208	2.17
cis-Sabinene hydrate	5.12	1064	0.14	6.79	1427	0.14
Terpinolene	5.46	1085	0.63	4.20	1242	0.63
trans-Sabinene hydrate	5.61	1095	0.06	7.85	1506	0.06
Linalool	5.70	1101	0.47	7.96	1515	0.45
para-Mentha-1,3,8-triene	5.81	1108	0.02	6.03	1371	0.02
endo-Fenchol	5.86	1111	0.01	8.29	1541	0.01
cis-para-Menth-2-en-1-ol	5.97	1118	0.10	8.01	1519	0.11
allo-Ocimene	6.16*	1130	0.03	5.50	1331	0.01
4-Hydroxy-4-methylcyclohex-2-enone	6.16*	1130	[0.03]	13.89	2024	0.01
Cosmene isomer I	6.16*	1130	[0.03]	6.27	1388	0.02
trans-para-Menth-2-en-1-ol	6.26	1137	0.08	8.84	1585	0.07
Epoxyterpinolene	6.35†	1143	0.06	6.62	1414	0.02
Unknown [m/z 109, 124 (45), 119 (41), 43 (35), 91 (28), 95 (25)...]	6.38†	1145	[0.06]	6.71*	1420	0.05
(2E)-Nonenal	6.60	1159	0.05	7.58	1486	0.06
Borneol	6.64	1162	0.03	9.67*	1651	0.18
Unknown [m/z 109, 79 (18), 81 (15), 91 (12), 77 (10)... 152 (3)]	6.72	1167	0.01			

Terpinen-4-ol	6.84	1175	1.94	8.46	1555	1.91
meta-Cymen-8-ol	6.92	1180	0.01	11.40	1797	0.01
α -Terpineol	7.05	1189	0.15	9.67*	1651	[0.18]
<i>cis</i> -Piperitol	7.12*	1194	0.04	9.43	1632	0.03
para-Mentha-1,5-dien-7-ol	7.12*	1194	[0.04]	10.90	1754	0.01
<i>trans</i> -Piperitol	7.32	1207	0.05	10.29	1703	0.06
Unknown [m/z 119, 43 (52), 59 (45), 91 (36), 79 (24), 134 (23)...]	7.55	1223	0.03	10.95	1758	0.03
Thymol methyl ether	7.68	1232	0.01	8.35*	1546	2.34
Unknown [m/z 85, 43 (48), 119 (42), 41 (26), 134 (25)...]	7.75	1237	0.03	8.07*	1524	0.07
Unknown [m/z 109, 119 (84), 91 (81), 134 (55)... 137 (27)...]	7.90	1248	0.01	11.17	1778	0.01
Geraniol	8.06	1259	0.01	11.52	1808	0.03
<i>cis</i> -Chrysanthenyl acetate	8.14	1259	0.06	8.07*	1524	[0.07]
Phellandral	8.25	1266	0.01	9.86*	1668	0.29
4-Thujen-2 α -yl acetate	8.36	1274	0.01	8.79	1581	0.01
Bornyl acetate	8.49	1283	3.22	8.15*	1530	3.20
<i>trans</i> -Pinocarvyl acetate	8.69	1296	0.02	8.96	1594	0.01
Unknown [m/z 109, 43 (84), 134 (43), 41 (28), 151 (26), 91 (24)...]	8.83	1305	0.17	9.30*	1621	0.30
Tridecane	8.88	1309	0.03	5.06	1307	0.01
Myrtenyl acetate	9.06	1322	0.01	9.51*	1639	0.15
para-Mentha-1,4-dien-7-ol	9.13	1326	0.03	13.62*	1999	0.04
δ -Elemene	9.25	1336	0.06	6.90	1435	0.04
α -Longipinene	9.38	1344	0.03	6.71*	1420	[0.05]
α -Terpinyl acetate	9.42	1347	0.14	9.60	1646	0.14
Neryl acetate	9.68	1366	0.03	10.09*	1686	1.53
α -Copaene	9.77	1372	0.13	7.09	1449	0.13
Daucene	9.84	1377	0.02	7.12	1452	0.02
β -Bourbonene	9.88	1380	0.05	7.41	1474	0.05
Geranyl acetate	9.98*	1387	5.15	10.48*	1718	5.13
β -Cubebene	9.98*	1387	[5.15]	7.71	1496	0.07
β -Elemene	10.02	1390	0.14	8.35*	1546	[2.34]
β -Longipinene	10.06	1393	0.01	7.66	1492	0.01
Methyleugenol	10.21	1404	0.03	13.22	1962	0.08
Sesquithujene	10.25	1406	0.01	8.07*	1524	[0.07]
β -Caryophyllene	10.35*	1414	2.22	8.35*	1546	[2.34]
<i>cis</i> - α -Bergamotene	10.35*	1414	[2.22]	8.15*	1530	[3.20]

β-Copaene	10.49	1424	0.02	8.35*	1546	[2.34]
<i>trans</i> -α-Bergamotene	10.63	1435	0.13	8.35*	1546	[2.34]
Sesquisabinene A	10.73*	1442	0.08	9.07	1602	0.07
<i>cis</i> -β-Bergamotene?	10.73*	1442	[0.08]			
α-Humulene	10.80	1448	0.27	9.20	1613	0.25
Unknown [m/z 109, 124 (27), 79 (10), 91 (10), 145 (10)... 204? (1)]	10.92*	1456	0.34	10.56*	1725	0.17
Sesquisabinene B	10.92*	1456	[0.34]	9.30*	1621	[0.30]
(<i>E</i>)-β-Farnesene	10.96	1460	0.81	9.48*	1636	0.98
10- <i>epi</i> -β-Acoradiene	11.09*	1470	0.35	9.48*	1636	[0.98]
γ-Murolene	11.09*	1470	[0.35]	9.51*	1639	[0.15]
Germacrene D	11.19	1476	1.76	9.71	1655	1.67
β-Selinene	11.24	1481	0.67	9.79	1661	0.60
α-Selinene	11.39*	1492	0.80	9.86*	1668	[0.29]
Bicyclogermacrene	11.39*	1492	[0.80]	9.98*	1677	0.59
Viridiflorene	11.39*	1492	[0.80]	9.58	1644	0.03
α-Murolene	11.45	1496	0.18	9.98*	1677	[0.59]
Methyl (<i>E</i>)-isoeugenol	11.47	1498	0.08	14.95*	2128	0.08
β-Bisabolene	11.62*	1509	1.60	10.09*	1686	[1.53]
γ-Cadinene	11.62*	1509	[1.60]	10.32	1704	0.06
Spirovetiva-1(10),7(11)-diene	11.68	1514	0.05	9.92	1672	0.03
δ-Cadinene	11.77	1521	0.39	10.35	1707	0.32
<i>trans</i> -Cadina-1,4-diene	11.88	1529	0.02	10.56*	1725	[0.17]
(<i>E</i>)-γ-Bisabolene	11.90	1531	0.07	10.39	1711	0.10
Unknown [m/z 189, 204 (92), 161 (65), 133 (51), 105 (51), 91 (51), 119 (45)]	11.94	1534	0.10	10.48*	1718	[5.13]
(<i>E</i>)-α-Bisabolene	12.06*	1543	0.14	10.66	1734	0.11
Isocaryophyllene epoxide B	12.06*	1543	[0.14]	12.02	1853	0.01
Germacrene B	12.14	1550	0.08	11.03	1766	0.08
Spathulenol	12.40*	1571	0.09	14.29	2064	0.04
Germacrene D-4-ol	12.40*	1571	[0.09]	13.57	1994	0.06
Caryophyllene oxide	12.45*	1575	0.06	12.67	1910	0.05
Caryophyllene oxide isomer	12.45*	1575	[0.06]	12.59	1903	0.01
Unknown [m/z 109, 43 (95), 81 (81), 93 (76), 69 (75), 95 (74), 107 (71)... 204 (22), 220	12.49	1577	0.02			

(6)]						
Carotol	12.65	1590	1.00	13.17	1957	0.89
Junenol	12.86	1607	0.01	13.50	1988	0.01
10-epi-Cubenol	12.89	1609	0.02	13.62*	1999	[0.04]
Unknown [m/z 179, 161 (66), 119 (44), 95 (38), 105 (35)... 204 (24), 222 (1)]	12.91	1611	0.01	14.52	2086	0.02
1-epi-Cubenol	13.06	1623	0.02	13.68	2004	0.02
Hinesol	13.17	1633	0.02	14.91	2124	0.14
11- α H-Himachal-4- en-1- β -ol isomer?	13.21*	1636	0.33			
τ -Muurolol	13.21*	1636	[0.33]	14.95*	2128	[0.08]
τ -Cadinol	13.21*	1636	[0.33]	14.79	2112	0.06
Himachalol	13.28*	1642	0.04	15.09	2142	0.03
α -Muurolol	13.28*	1642	[0.04]	15.05	2138	0.02
α -Cadinol	13.38	1649	0.15	15.38*	2171	0.28
(3Z)-Caryophylla- 3,8(13)-dien-5 β -ol	13.55	1664	0.02	16.76	2314	0.02
α -Bisabolol	13.78*	1683	0.37	15.38*	2171	[0.28]
Shyobunol	13.78*	1683	[0.37]	16.18	2253	0.22
Juniper camphor	13.84	1688	0.38	15.94	2228	0.36
Mint sulfide?	14.28	1725	0.01			
Neophytadiene	15.63	1845	0.04	12.53	1898	0.01
Total identified		97.85%			97.74%	
Total reported		98.24%			97.80%	

*: 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