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Carrot Seed

Daucus Carota

Batch No. CA-58936

Canada

Monoterpenes 80.45%

sabinene	42.37
α -pinene	16.76
myrcene	4.27
β -pinene	3.78
γ terpinene	3.65
limonene	3.05
α -terpinene	2.07
terpinolene	0.95
(Z)- β -ocimene	0.88
camphene	0.76
α -thujene	0.60
β -phellandrene	0.55
(E)- β -ocimene	0.26
para cymene	0.25
α -phellandrene	0.16
cosmene isomer I	0.03
tricyclene	0.02
allo-Ocimene	0.02
para-Mentha-1,3,8-triene	0.01
4-Hydroxy-4-methylcyclohex-2-enone	0.01

Monoterpenols 5.39%

terpinene-4-ol	3.87
linalol	0.58
α -terpineol	0.27
cis-para-Menth-2-en-1-ol	0.16
cis-sabinene hydrate	0.11
trans-para-Menth-2-en-1-ol	0.1
trans-sabinene hydrate	0.06
trans-piperitol	0.06
geraniol	0.05
cis-piperitol	0.04
borneol	0.03
α -longipinene	0.02
endo-fenchol	0.01
meta-cymen-8-ol	0.01
para-Mentha-1,5-dien-7-ol	0.01
trans-Ascaridole glycol	0.01

Raw Material: Carrot Seed
 INCI Name: Daucus Carota Fruit Oil
 Production Steam Dist., Canada
 Date of Analysis: 10/2017

Sesquiterpenes 7.06%

β -caryophyllene + cis- α -bergamotene	1.56
β -bisabolene	1.15
germacrene D	1.07
trans- β -farnesene	0.47
γ -cadinene	0.39
β -selinene	0.37
bicyclogermacrene	0.34
δ -cadinene	0.33
α -selinene	0.15
α -humulene	0.15
γ muurolene	0.12
α -muurolene	0.12
α -copaene	0.11
(E)- α -bisabolene	0.11
β -elemene	0.09
(10-epi?)- β -acoradiene	0.09
cis- α -bergamotene	0.08
(E)- γ -bisabolene	0.07
sesquisabinene A	0.04
δ -elemene	0.04
β -bourbonene	0.04
β -cubebene	0.04
germacrene B	0.04
viridiflorene	0.02
β -curcumene	0.02
sesquithujene	0.01
daucene	0.01
β -copaene	0.01
γ -amorphone	0.01
trans-cadina-1,4-diene	0.01

Aldehydes 0.02%

(2E)-nonenal	0.02
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Esters 5.38%

geranyl acetate	3.84
bornyl acetate	1.39
α -terpinyl acetate	0.11
neral acetate	0.02
cis-Chrysanthenyl acetate	0.02

Sesquiterpenols 0.62%

carotol	0.23
shyobunol	0.07
germacrene D-4-ol	0.02
spathulenol	0.02
1-epi-cubenol	0.01
hinesol	0.03
τ -cadinol	0.03
τ -muurolol	0.04
α -muurolol	0.01
himachalol	0.01
α -cadinol	0.10
α -bisabolol	0.05

Ethers 0.06%

caryophyllene oxide	0.03
perillene	0.02
epoxyterpinolene	0.01

Phenols 0.06%

carvacrol	0.02
methyleugenol	0.02
methyl (E)-isoeugenol	0.02

Other 0.02%

4-Hydroxy-4-methylcyclohex-2-enone	0.01
tridecane	0.01

Date : October 26, 2017

SAMPLE IDENTIFICATION

Internal code : 17J12-NG-1-CC

Customer identification : HE Daucus Carota - B-DACACAN09RC

Type : Essential oil

Source : *Daucus carota*

Customer : Aliksir

ANALYSIS

Method: PC-PA-001-15E06, "Analysis of the composition of a liquid essential oil by GC-FID" (in French).

Identifications double-checked by GC-MS

Analyst : Alexis St-Gelais, M. Sc., chimiste

Analysis date : October 24, 2017

Checked and approved by :

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

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This report is digitally signed, it is only considered valid if the digital signature is intact.

PHYSICOCHEMICAL DATA

Physical aspect: Faintly yellow liquid
Refractive index: 1.4715 ± 0.0003 (20 °C)

CONCLUSION

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

ANALYSIS SUMMARY

Identification	DB-5 (%)	DB-WAX (%)	Classe
Tricyclene	0.02	0.03	Monoterpene
α -Thujene	0.60	0.60	Monoterpene
α -Pinene	16.76	16.81	Aliphatic alcohol
Camphene	0.76	0.75	Monoterpene
Sabinene	45.93	42.37	Monoterpene
β -Pinene	[45.93]	3.78	Monoterpene
Myrcene	4.27	4.28	Monoterpene
α -Phellandrene	0.16	0.16	Monoterpene
α -Terpinene	2.07	2.09	Monoterpene
para-Cymene	0.25	0.26	Monoterpene
Limonene	3.57	3.05	Monoterpene
β -Phellandrene	[3.57]	0.55	Monoterpene
1,8-Cineole	[3.57]	[0.55]	Monoterpenic ether
(Z)- β -Ocimene	0.88	0.92	Monoterpene
(E)- β -Ocimene	0.26	0.27	Monoterpene
γ -Terpinene	3.65	3.66	Monoterpene
cis-Sabinene hydrate	0.11	0.11	Monoterpenic alcohol
Terpinolene	0.95	0.95	Monoterpene
trans-Sabinene hydrate	0.06	0.06	Monoterpenic alcohol
Linalool	0.60	0.60	Monoterpenic alcohol
Perillene	[0.60]	0.02	Monoterpenic ether
para-Mentha-1,3,8-triene	0.01		Monoterpene
endo-Fenchol	0.01	0.01	Monoterpenic alcohol
cis-para-Menth-2-en-1-ol	0.16	0.16	Monoterpenic alcohol
allo-Ocimene	0.03	0.02	Monoterpene
4-Hydroxy-4-methylcyclohex-2-enone	[0.03]	0.01	Aliphatic alcohol
Cosmene isomer I	0.13	0.03	Monoterpene
trans-para-Menth-2-en-1-ol	[0.13]	0.10	Monoterpenic alcohol
Epoxyterpinolene	0.01	tr	Monoterpenic ether
Unknown	0.04	0.04	Unknown
(2E)-Nonenal	0.02	0.02	Aliphatic aldehyde
Borneol	0.03	1.13	Monoterpenic alcohol
Unknown	0.02		Oxygenated monoterpene
Terpinen-4-ol	3.87	3.85	Monoterpenic alcohol
meta-Cymen-8-ol	0.01	0.01	Monoterpenic alcohol
α -Terpineol	0.27	0.27	Monoterpenic alcohol
cis-Piperitol	0.05	0.44	Monoterpenic alcohol
para-Mentha-1,5-dien-7-ol	[0.05]	0.01	Monoterpenic alcohol
trans-Piperitol	0.06	0.39	Monoterpenic alcohol
Unknown	0.03		Oxygenated monoterpene
Unknown	0.01	0.01	Oxygenated monoterpene
Unknown	0.02	0.01	Oxygenated monoterpene
Geraniol	0.05	0.05	Monoterpenic alcohol
cis-Chrysanthenyl acetate	0.02	0.04	Monoterpenic ester
trans-Ascaridole glycol	0.01	0.01	Monoterpenic alcohol
Bornyl acetate	1.39	1.42	Monoterpenic ester
Tridecane	0.01	0.01	Alkane

Unknown	0.09		Oxygenated monoterpene
Carvacrol	0.02	0.02	Monoterpenic alcohol
δ -Elemene	0.04	0.03	Sesquiterpene
α -Longipinene	0.02	[0.04]	Sesquiterpene
α -Terpinyl acetate	0.11	0.10	Monoterpenic ester
Neryl acetate	0.02	1.15	Monoterpenic ester
α -Copaene	0.11	0.11	Sesquiterpene
β -Bourbonene	0.04	0.04	Sesquiterpene
Daucene	[0.04]	0.01	Sesquiterpene
Geranyl acetate	3.88	3.88	Monoterpenic ester
β -Cubebene	[3.88]	0.04	Sesquiterpene
β -Elemene	0.09	1.64	Sesquiterpene
Methyleugenol	0.02	0.22	Phenylpropanoid
Sesquithujene	[0.02]	[0.60]	Sesquiterpene
β -Caryophyllene	1.56	[1.64]	Sesquiterpene
<i>cis</i> - α -Bergamotene	[1.56]	[1.42]	Sesquiterpene
β -Copaene	0.01	[1.42]	Sesquiterpene
<i>trans</i> - α -Bergamotene	0.08	[1.64]	Sesquiterpene
Sesquisabinene A	0.04	0.04	Sesquiterpene
α -Humulene	0.15	0.16	Sesquiterpene
Unknown	0.19	[3.88]	Sesquiterpene
(<i>E</i>)- β -Farnesene	0.47	[0.44]	Sesquiterpene
(10- <i>epi</i> ?) β -Acoradiene	0.09	0.08	Sesquiterpene
Germacrene D	1.19	[1.13]	Sesquiterpene
γ -Murolene	[1.19]	0.12	Sesquiterpene
β -Selinene	0.37	0.33	Sesquiterpene
γ -Amorphene	0.01		Sesquiterpene
Viridiflorene	0.45	0.02	Sesquiterpene
α -Selinene	[0.45]	0.15	Sesquiterpene
Bicyclogermacrene	[0.45]	0.34	Sesquiterpene
α -Murolene	0.12	[0.34]	Sesquiterpene
Methyl (<i>E</i>)-isoeugenol	0.02	0.02	Phenylpropanoid
β -Bisabolene	1.21	[1.15]	Sesquiterpene
γ -Cadinene	[1.21]	[0.39]	Sesquiterpene
β -Curcumene	0.02		Sesquiterpene
δ -Cadinene	0.33	[0.39]	Sesquiterpene
<i>trans</i> -Cadina-1,4-diene	0.01	0.01	Sesquiterpene
Unknown	0.03	0.11	Sesquiterpene
(<i>E</i>)- γ -Bisabolene	0.07	0.06	Sesquiterpene
(<i>E</i>)- α -Bisabolene	0.11	0.11	Sesquiterpene
Germacrene B	0.04	0.04	Sesquiterpene
Spathulenol	0.03	0.02	Sesquiterpenic alcohol
Germacrene D-4-ol	[0.03]	0.02	Sesquiterpenic alcohol
Caryophyllene oxide	0.03	0.02	Sesquiterpenic ether
Carotol	0.23	[0.22]	Sesquiterpenic alcohol
1- <i>epi</i> -Cubenol	0.01	0.01	Sesquiterpenic alcohol
Hinesol?	0.12	0.03	Sesquiterpenic alcohol
τ -Cadinol	[0.12]	0.03	Sesquiterpenic alcohol
τ -Muurolol	[0.12]	0.04	Sesquiterpenic alcohol
α -Muurolol	0.01	0.01	Sesquiterpenic alcohol
Himachalol	[0.01]	[0.01]	Sesquiterpenic alcohol
α -Cadinol	0.10	0.09	Sesquiterpenic alcohol

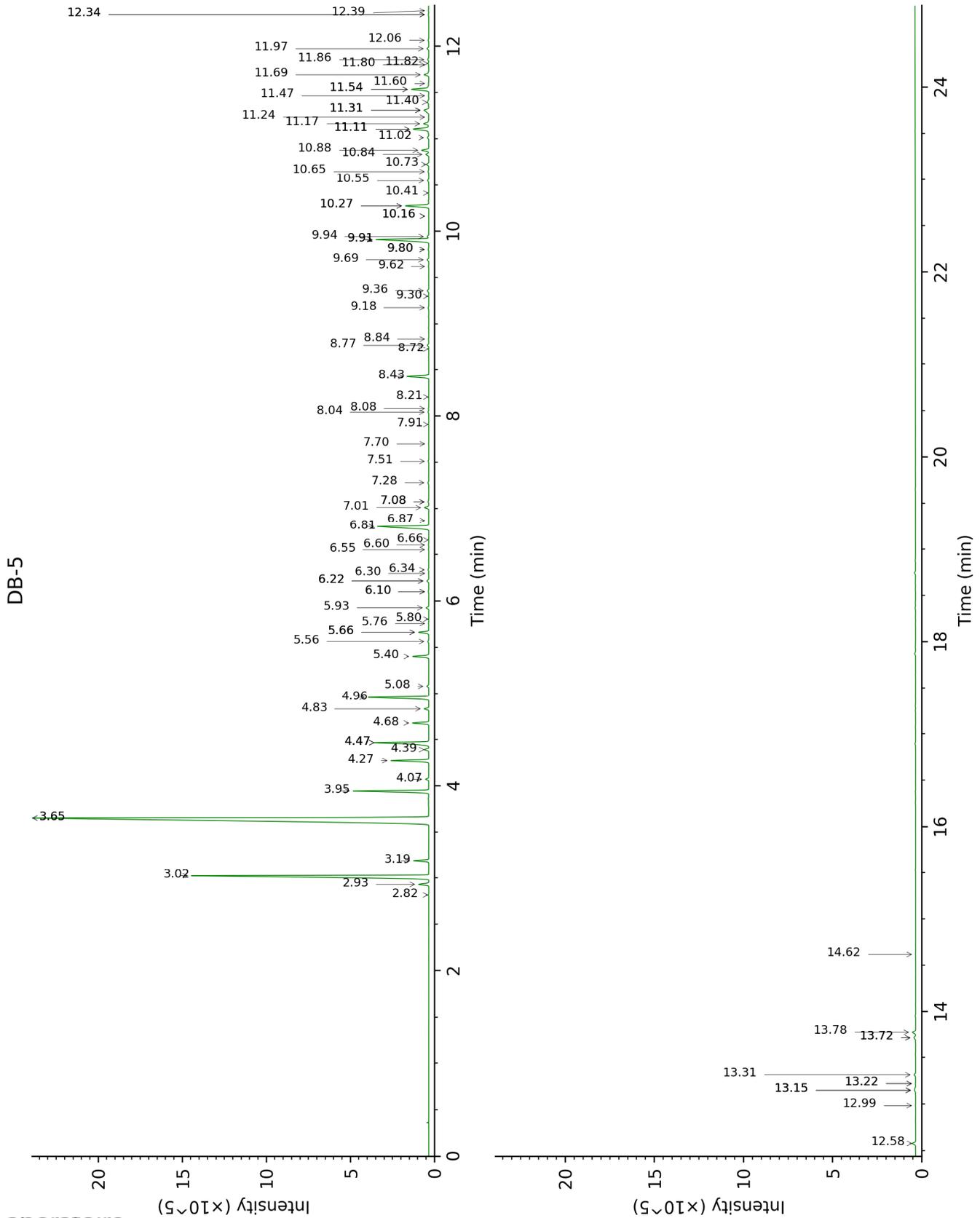
α -Bisabolol	0.14	0.05	Sesquiterpenic alcohol
Shyobunol	[0.14]	0.07	Sesquiterpenic alcohol
Juniper camphor	0.23	0.21	Sesquiterpenic alcohol
Drimenol	0.01		Sesquiterpenic alcohol
Total identified	98.68%	98.67%	

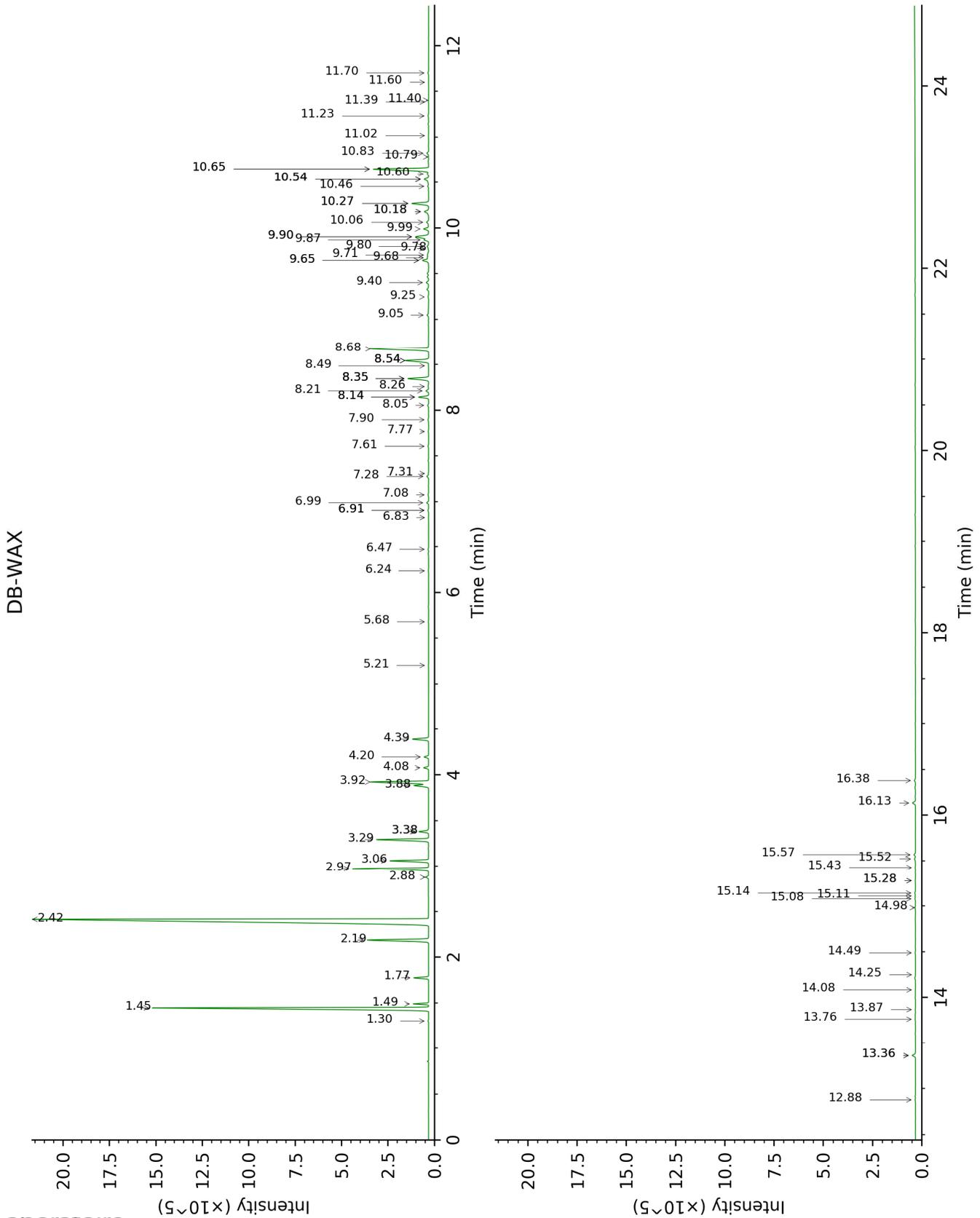
[xx]: Duplicate percentage due to coelutions, not taken account in the identified total

tr: Traces

Note: no correction factor was applied

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FULL ANALYSIS DATA

Identification	Column DB-5			Column DB-WAX		
	R.T	R.I	%	R.T	R.I	%
Tricyclene	2.82	914.4	0.02	1.30	974.3	0.03
α -Thujene	2.93	922.0	0.60	1.49	1002.9	0.60
α -Pinene	3.02	928.3	16.76	1.45	996.5	16.81
Camphene	3.19	939.6	0.76	1.78	1030.1	0.75
Sabinene	3.65*	970.5	45.93	2.42	1091.3	42.37
β -Pinene	3.65*	970.5	[45.93]	2.19	1069.6	3.78
Myrcene	3.95	990.1	4.27	2.97	1136.3	4.28
α -Phellandrene	4.07	998.5	0.16	2.88	1128.8	0.16
α -Terpinene	4.27	1011.3	2.07	3.06	1143.0	2.09
para-Cymene	4.39	1018.8	0.25	4.20	1228.3	0.26
Limonene	4.47*	1023.5	3.57	3.29	1160.8	3.05
β -Phellandrene	4.47*	1023.5	[3.57]	3.38*	1167.5	0.55
1,8-Cineole	4.47*	1023.5	[3.57]	3.38*	1167.5	[0.55]
(Z)- β -Ocimene	4.68	1036.9	0.88	3.88	1205.9	0.92
(E)- β -Ocimene	4.83	1046.5	0.26	4.08	1219.8	0.27
γ -Terpinene	4.96	1054.5	3.65	3.92	1208.7	3.66
<i>cis</i> -Sabinene hydrate	5.08	1062.2	0.11	6.99	1430.6	0.11
Terpinolene	5.40	1082.6	0.95	4.39	1242.3	0.95
<i>trans</i> -Sabinene hydrate	5.56	1092.7	0.06	8.06	1510.5	0.06
Linalool	5.66*	1099.0	0.60	8.14*	1517.5	0.60
Perillene	5.66*	1099.0	[0.60]	6.24	1375.4	0.02
para-Mentha-1,3,8-triene	5.76	1105.0	0.01			
endo-Fenchol	5.80	1108.0	0.01	8.49	1544.3	0.01
<i>cis</i> -para-Menth-2-en-1-ol	5.93	1115.8	0.16	8.21	1522.9	0.16
allo-Ocimene	6.10*	1127.0	0.03	5.68	1335.1	0.02
4-Hydroxy-4-methylcyclohex-2-enone	6.10*	1127.0	[0.03]	14.08	2028.4	0.01
Cosmene isomer I	6.22*	1134.3	0.13	6.47	1392.4	0.03
<i>trans</i> -para-Menth-2-en-1-ol	6.22*	1134.3	[0.13]	9.05	1588.2	0.10
Epoxyterpinolene	6.30	1139.6	0.01	6.83	1418.5	tr
Unknown [m/z 109, 124 (45), 119 (41), 43 (35), 91 (28), 95 (25)...]	6.34	1142.1	0.04	6.91*	1424.4	0.04
(2E)-Nonenal	6.55	1156.0	0.02	7.77	1488.9	0.02
Borneol	6.60	1159.2	0.03	9.90*	1657.4	1.13
Unknown [m/z 109, 79 (18), 81 (15), 91 (12), 77 (10)... 152 (3)]	6.66	1162.7	0.02			
Terpinen-4-ol	6.81	1172.2	3.87	8.68	1559.0	3.85
meta-Cymen-8-ol	6.87	1176.4	0.01	11.60	1800.4	0.01

α -Terpineol	7.01	1185.5	0.27	9.87	1654.6	0.27
<i>cis</i> -Piperitol	7.08*	1189.5	0.05	9.65*	1636.3	0.44
<i>para</i> -Mentha-1,5-dien-7-ol	7.08*	1189.5	[0.05]	11.02	1750.5	0.01
<i>trans</i> -Piperitol	7.28	1202.8	0.06	10.54*	1709.2	0.39
Unknown [m/z 119, 43 (52), 59 (45), 91 (36), 79 (24), 134 (23)...]	7.51	1218.3	0.03			
Unknown [m/z 137, 152 (28), 43 (25), 91 (24), 109 (23), 119 (19)]	7.70	1230.9	0.01	11.40	1783.5	0.01
Unknown [m/z 109, 119 (84), 91 (81), 134 (55)... 137 (27)...]	7.91	1244.9	0.02	11.39	1782.0	0.01
Geraniol	8.04	1253.8	0.05	11.70	1809.2	0.05
<i>cis</i> -Chrysanthenyl acetate	8.08	1256.4	0.02	8.26	1526.5	0.04
<i>trans</i> -Ascaridole glycol	8.21	1264.8	0.01	14.25	2044.5	0.01
Bornyl acetate	8.43	1279.6	1.39	8.35*	1533.3	1.42
Tridecane	8.72	1299.4	0.01	5.20	1300.7	0.01
Unknown [m/z 109, 43 (84), 134 (43), 41 (28), 151 (26), 91 (24)...]	8.77	1302.7	0.09			
Carvacrol	8.84	1307.5	0.02	15.43	2161.1	0.02
δ -Elemene	9.18	1331.4	0.04	7.08	1437.1	0.03
α -Longipinene	9.30	1340.1	0.02	6.91*	1424.4	[0.04]
α -Terpinyl acetate	9.36	1344.3	0.11	9.80	1648.7	0.10
Neryl acetate	9.62	1362.8	0.02	10.27*	1687.2	1.15
α -Copaene	9.69	1367.8	0.11	7.28	1452.1	0.11
β -Bourbonene	9.80*	1375.7	0.04	7.61	1476.8	0.04
Daucene	9.80*	1375.7	[0.04]	7.31	1454.5	0.01
Geranyl acetate	9.91*	1383.3	3.88	10.65*	1719.1	3.88
β -Cubebene	9.91*	1383.3	[3.88]	7.90	1498.5	0.04
β -Elemene	9.94	1385.5	0.09	8.54*	1548.8	1.64
Methyleugenol	10.16*	1401.1	0.02	13.36*	1959.9	0.22
Sesquithujene	10.16*	1401.1	[0.02]	8.14*	1517.5	[0.60]
β -Caryophyllene	10.27*	1409.4	1.56	8.54*	1548.8	[1.64]
<i>cis</i> - α -Bergamotene	10.27*	1409.4	[1.56]	8.35*	1533.3	[1.42]
β -Copaene	10.41	1419.7	0.01	8.35*	1533.3	[1.42]
<i>trans</i> - α -Bergamotene	10.55	1429.9	0.08	8.54*	1548.8	[1.64]
Sesquisabinene A	10.65	1437.4	0.04	9.25	1603.7	0.04
α -Humulene	10.73	1443.2	0.15	9.40	1616.5	0.16
Unknown [m/z 109, 124 (27), 79 (10), 91 (10), 145 (10)... 204? (1)]	10.84	1451.3	0.19	10.65*	1719.1	[3.88]

(E)-β-Farnesene	10.88	1454.6	0.47	9.65*	1636.3	[0.44]
(10-epi?)-β-Acoradiene	11.02	1464.7	0.09	9.68	1638.7	0.08
Germacrene D	11.11*	1471.6	1.19	9.90*	1657.4	[1.13]
γ-Muurolene	11.11*	1471.6	[1.19]	9.70	1641.1	0.12
β-Selinene	11.17	1475.9	0.37	9.99	1664.4	0.33
γ-Amorphene	11.24	1481.2	0.01			
Viridiflorene	11.31*	1486.7	0.45	9.78	1646.9	0.02
α-Selinene	11.31*	1486.7	[0.45]	10.06	1670.4	0.15
Bicyclogermacrene	11.31*	1486.7	[0.45]	10.18*	1679.9	0.34
α-Muurolene	11.40	1493.1	0.12	10.18*	1679.9	[0.34]
Methyl (E)-isoeugenol	11.47	1498.4	0.02	15.11	2129.2	0.02
β-Bisabolene	11.54*	1503.7	1.21	10.27*	1687.2	[1.15]
γ-Cadinene	11.54*	1503.7	[1.21]	10.54*	1709.2	[0.39]
β-Curcumene	11.60	1508.6	0.02			
δ-Cadinene	11.69	1516.0	0.33	10.54*	1709.2	[0.39]
trans-Cadina-1,4-diene	11.80	1524.5	0.01	10.79	1730.6	0.01
Unknown [m/z 189, 204 (92), 161 (65), 133 (51), 105 (51), 91 (51), 119 (45)]	11.82	1525.7	0.03	10.60	1714.4	0.11
(E)-γ-Bisabolene	11.86	1528.9	0.07	10.46	1702.6	0.06
(E)-α-Bisabolene	11.98	1538.1	0.11	10.83	1734.0	0.11
Germacrene B	12.06	1545.2	0.04	11.23	1768.9	0.04
Spathulenol	12.34*	1567.0	0.03	14.49	2067.8	0.02
Germacrene D-4-ol	12.34*	1567.0	[0.03]	13.76	1997.5	0.02
Caryophyllene oxide	12.39	1570.4	0.03	12.88	1915.0	0.02
Carotol	12.58	1585.7	0.23	13.36*	1959.9	[0.22]
1-epi-Cubenol	12.99	1618.4	0.01	13.87	2007.4	0.01
Hinesol?	13.15*	1631.9	0.12	15.08	2125.9	0.03
τ-Cadinol	13.15*	1631.9	[0.12]	14.98	2116.2	0.03
τ-Muurolol	13.15*	1631.9	[0.12]	15.14	2132.5	0.04
α-Muurolol	13.22*	1637.8	0.01	15.28*	2146.2	0.01
Himachalol	13.22*	1637.8	[0.01]	15.28*	2146.2	[0.01]
α-Cadinol	13.32	1645.6	0.10	15.57	2175.5	0.09
α-Bisabolol	13.72*	1679.0	0.14	15.52	2170.8	0.05
Shyobunol	13.72*	1679.0	[0.14]	16.38	2259.8	0.07
Juniper camphor	13.78	1684.0	0.23	16.13	2233.9	0.21
Drimenol	14.62	1755.9	0.01			
Total identified		98.68%			98.67%	
Total reported		99.12%			98.79%	

*: 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: Traces

Note: no correction factor was applied

R.T.: Retention time (minutes)

R.I.: Retention index