



Ledum

Ledum groenlandicum aka Rhododendron groenlandicum

Batch No. CA-58935
 Organically Produced, Canada

Monoterpenes	56.76%
sabinene	14.23
γ terpinene	11.28
α -pinene	6.95
β -pinene	6.94
α terpinene	4.72
para cymene	3.29
terpinolene	1.97
β phellandrene	1.63
camphene	1.58
limonene	1.45
α thujene	0.99
α phellandrene	0.66
myrcene	0.36
para-cymenene	0.16
cis β ocimene	0.14
tricyclene	0.11
menthatriene isomer I	0.06
trans β ocimene	0.06
pseudolimonene	0.06
para-mentha-1,3,8-triene	0.04
thuja-2,4(10)-diene	0.03
α -fenchene	0.02
Δ -3-carene	0.02
bornylene	0.01

Monoterpenols	16.02%
terpinen-4-ol	11.81
trans-pinocarveol	1.60
α terpineol	0.75
thuj-3-en-10-al	0.58
myrtenol	0.33
cis-piperitol	0.21
cis-para-menth-2-en-1-ol	0.12
para-cymen-7-ol	0.11
cis-para-Mentha-1(7),8-dien-2-	0.08
cis-sabinol	0.07
trans-piperitol	0.07
borneol	0.06
trans-isopiperitenol	0.06
linalol	0.04
trans sabinene hydrate	0.04
trans-isocarveol	0.04
cis sabinene hydrate	0.03
trans-carveol	0.01
cuminol	0.01
parillyl alcohol	0.07
thymol	0.05
carvacrol	0.05

Aldehydes	4.06%
myrtenal	2.4
cuminal	0.81
Thuj-3-en-10-al	0.58
α -terpinen-7-al	0.1
phellandral	0.08
nonanal	0.04
α -campholenal	0.03
benzaldehyde	0.02

Sesquiterpenenes	11.93%
β selinene	6.38
α selinene	1.60
β -bisbolene	0.76
α gurjunene	0.47
δ cadinene	0.37
α humulene	0.35
allo-aromadendrene	0.29
β elemene	0.24
eudesma-2,4,11-triene	0.18
α copaene	0.14
β -caryophyllene	0.13
germacrene b	0.12
trans- β -farnesene	0.11
7-epi- α -selinene	0.11
germacrene d	0.10
trans-cadina-1,4-diene	0.10
cis- β -elemene	0.07
(E)- α -bisabolene	0.06
trans-cadina-1(6),4-diene	0.05
trans-calamenene	0.04
trans α bergamotene	0.04
α -calacorene	0.04
cis- β -bergamotene	0.04
α cubebene	0.03
α muurolene	0.03
cis- α -bergamotene	0.02
γ elemene	0.02
β -cubebene	0.01
β copaene	0.01
α -elemol	0.01
γ gurjunene	0.01

Raw Material: Ledum
 INCI Name: Ledum groenlandicum
 Production Steam Dist., leaves
 Date of Analysis: September, 2018



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Esters	2.87%
bornyl acetate	2.62
neryl acetate	0.08
myrtenyl acetate	0.06
geranyl acetate	0.05
citronellyl acetate	0.04
methyl citronellate	0.02

Ethers	0.16%
epoxyterpinolene	0.07
vitispirane	0.04
caryophyllene oxide	0.02
humulene epoxide II	0.02
curzerene	0.01

Ketones	3.74%
dehydrosabinaketone	1.25
pinocarvone	0.71
sabinaketone	0.51
cyclocolorenone	0.40
Eudesma-3,11-dien-2-one	0.26
germacrone	0.17
isopinocampone	0.13
camphor	0.11
carvone	0.08
cryptone	0.06
shyobunone	0.03
2,2,7,7-Tetramethyltricyclo[6.2.1.0(1,6)]undec-4-en-3-one	0.03

Sesquiterpenols	0.76%
eudesm-5-en-11-ol	0.42
palustrol	0.13
ledol	0.07
1-epi-cubenol	0.04
β -copaen-4 α -ol	0.04
viridiflorol	0.04
cubenol	0.02

Other	0.09%
4-hydroxy-4-methylcyclohex-2-enon	0.03
(3Z)-hexenol	0.02
ethanol	0.01
octane	0.01
cumene	0.01
octanol	0.01

Phenols	0.05%
para-vinylnisole	0.05

Raw Material: Ledum

INCI Name: Ledum groenlandicum

Production Steam Dist., leaves

Date of Analysis: September, 2018

Date : September 13, 2018

CERTIFICATE OF ANALYSIS – GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 18I07-NG-1-CC

Customer identification : HE Ledum groenlandicum - CA-58935

Type : Essential oil

Source : *Rhododendron groenlandicum*

Customer : Nature's Gift

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 : Sylvain Mercier, M. Sc., Chimiste

Analysis date : September 11, 2018

Checked and approved by :

Sylvain Mercier, M. Sc., chimiste 2014-005

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PHYSICOCHEMICAL DATA

Physical aspect: Light yellow liquid

Refractive index: 1.4798 ± 0.0003 (20 °C)

CONCLUSION

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

ANALYSIS SUMMARY

Identification	DB-5 (%)	DB-WAX (%)	Classe
Ethanol	0.01	tr	Aliphatic alcohol
Isovaleral	tr	tr	Aliphatic aldehyde
2-Methylbutyral	tr	tr	Aliphatic aldehyde
Toluene	tr	6.94*	Simple phenolic
Hexanal	tr	tr	Aliphatic aldehyde
Octane	0.01	0.01	Alkane
Unknown	0.01		Unknown
Unknown	0.01		Unknown
(3Z)-Hexenol	0.02	0.02	Aliphatic alcohol
Unknown	0.03	0.03	Unknown
Bornylene	0.02*	0.01	Monoterpene
Heptanal	[0.02]*	tr	Aliphatic aldehyde
Nonane	[0.02]*	tr	Alkane
Tricyclene	0.11	0.11	Monoterpene
Cumene	0.01	0.02*	Normonoterpene
α -Thujene	0.99	1.02	Monoterpene
α -Pinene	6.95	[6.94]*	Monoterpene
Camphene	1.72*	1.58	Monoterpene
α -Fenchene	[1.72]*	0.02	Monoterpene
Thuja-2,4(10)-diene	0.03	14.23*	Monoterpene
Benzaldehyde	0.02	0.02	Simple phenolic
Sabinene	21.02	[14.23]*	Monoterpene
β -Pinene	[21.02]	6.94	Monoterpene
Myrcene	0.36	0.32	Monoterpene
α -Phellandrene	0.70*	0.66	Monoterpene
Menthatriene isomer I	[0.70]*	0.06	Monoterpene
Pseudolimonene	[0.70]*	[0.02]*	Monoterpene
Δ^3 -Carene	0.02	0.01	Monoterpene
α -Terpinene	4.72	4.82	Monoterpene
para-Cymene	3.29	3.32	Monoterpene
Limonene	3.25*	1.45	Monoterpene
β -Phellandrene	[3.25]*	1.63	Monoterpene
(Z)- β -Ocimene	0.14	11.59*	Monoterpene
(E)- β -Ocimene	0.06	0.07	Monoterpene
γ -Terpinene	11.28	[11.59]*	Monoterpene
Unknown	0.10*	0.03	Oxygenated monoterpene
cis-Sabinene hydrate	[0.10]*	0.03	Monoterpenic alcohol
Unknown	0.03	0.02	Oxygenated monoterpene
Octanol	0.01	0.02	Aliphatic alcohol
Terpinolene	2.14*	1.97	Monoterpene
para-Cymenene	[2.14]*	0.16	Monoterpene
Unknown	[2.14]*	0.04	Oxygenated monoterpene
trans-Sabinene hydrate	0.06*	0.04	Monoterpenic alcohol
Unknown	[0.06]*	0.03	Oxygenated monoterpene
Linalool	0.04	0.04	Monoterpenic alcohol
Unknown	0.09*	0.38*	Monoterpenic alcohol
Nonanal	[0.09]*	0.04	Aliphatic aldehyde
para-Mentha-1,3,8-triene	0.04	0.05	Monoterpene

Dehydrosabinaketone	1.25	1.24	Normoterpenic ketone
<i>cis</i> -para-Menth-2-en-1-ol	0.12	0.10	Monoterpenic alcohol
α -Campholenal	0.18*	0.03	Monoterpenic aldehyde
Unknown	[0.18]*	0.16	Oxygenated monoterpene
4-Hydroxy-4-methylcyclohex-2-enone	0.03	0.05	Aliphatic alcohol
<i>trans</i> -Pinocarveol	1.60	1.65*	Monoterpenic alcohol
Camphor	0.11	[0.29]	Monoterpenic ketone
Epoxyterpinolene	0.07	0.03	Monoterpenic ether
para-Vinylanisole	0.05	0.05	Simple phenolic
Sabinaketone	0.80*	[3.75]*	Normoterpenic ketone
Unknown	[0.80]*	0.29*	Oxygenated monoterpene
Pinocarvone	0.71	0.70	Monoterpenic ketone
Unknown	0.14	0.15	Unknown
Borneol	0.06	0.75*	Monoterpenic alcohol
Isopinocampone	0.13	0.14	Monoterpenic ketone
<i>cis</i> -Sabinol	0.07	0.25	Monoterpenic alcohol
Terpinen-4-ol	11.81	11.90	Monoterpenic alcohol
Thuj-3-en-10-al	0.64*	[3.75]*	Monoterpenic aldehyde
Cryptone	[0.64]*	0.06	Normoterpenic ketone
<i>trans</i> -Isocarveol	0.04	0.22	Monoterpenic alcohol
Myrtenal	3.15*	3.75	Monoterpenic aldehyde
α -Terpineol	[3.15]*	[0.75]*	Monoterpenic alcohol
<i>cis</i> -4-Caranone	[3.15]*	tr	Aliphatic ketone
Myrtenol	0.59*	0.33	Monoterpenic alcohol
<i>cis</i> -Piperitol	[0.59]*	0.21*	Monoterpenic alcohol
<i>trans</i> -Isopiperitenol	0.06	0.06	Monoterpenic alcohol
<i>trans</i> -Piperitol	0.07	0.59	Monoterpenic alcohol
<i>trans</i> -Carveol	0.01	0.01	Monoterpenic alcohol
Unknown	0.02		Unknown
<i>cis</i> -para-Mentha-1(7),8-dien-2-ol	0.08	0.08	Monoterpenic alcohol
Unknown	0.83*	0.05	Oxygenated monoterpene
Cuminal	[0.83]*	0.81	Monoterpenic aldehyde
Carvone	0.08	1.44*	Monoterpenic ketone
Unknown	0.03		Unknown
Methyl citronellate	0.02	2.62*	Monoterpenic ester
Phellandral	0.17*	[1.44]*	Monoterpenic aldehyde
Perillaldehyde	[0.17]*	0.08*	Monoterpenic aldehyde
Vitispirane	0.04	0.03	Terpenic ether
α -Terpinen-7-al	0.10	0.09	Monoterpenic aldehyde
Bornyl acetate	2.62	[2.62]*	Monoterpenic ester
Cuminol	0.12*	0.01	Monoterpenic alcohol
para-Cymen-7-ol	[0.12]*	0.11	Monoterpenic alcohol
Perillyl alcohol	0.07	0.04	Monoterpenic alcohol
Thymol	0.05	0.03	Monoterpenic alcohol
Carvacrol	0.05	0.03	Monoterpenic alcohol
Unknown	0.01	0.01	Monoterpenic alcohol
Myrtenyl acetate	0.06	[0.21]*	Monoterpenic ester
1,4-para-Menthadien-7-ol	0.28	0.29*	Monoterpenic alcohol
Unknown	0.01		Unknown
α -Cubebene	0.03	0.03	Sesquiterpene
Citronellyl acetate	0.04	0.02	Monoterpenic ester
Neryl acetate	0.08	1.06*	Monoterpenic ester

α -Copaene	0.14	[0.29]*	Sesquiterpene
<i>cis</i> - β -Elemene	0.07	[2.62]*	Sesquiterpene
Geranyl acetate	0.06*	0.09	Monoterpenic ester
β -Cubebene	[0.06]*	0.01	Sesquiterpene
β -Elemene	0.24	[0.38]*	Sesquiterpene
α -Gurjunene	0.47	0.48	Sesquiterpene
β -Caryophyllene	0.15*	[0.38]*	Sesquiterpene
<i>cis</i> - α -Bergamotene	[0.15]*	0.02	Sesquiterpene
β -Copaene	0.01	0.01	Sesquiterpene
γ -Elemene	0.02	0.36*	Sesquiterpene
<i>trans</i> - α -Bergamotene	0.04	[0.38]*	Sesquiterpene
<i>cis</i> - β -Bergamotene?	0.04		Sesquiterpene
α -Humulene	0.35	0.38	Sesquiterpene
allo-Aromadendrene	0.29	[0.36]*	Sesquiterpene
(<i>E</i>)- β -Farnesene	0.11	[0.21]*	Sesquiterpene
γ -Gurjunene	0.01	[1.65]*	Sesquiterpene
<i>trans</i> -Cadina-1(6),4-diene	0.05	0.11	Sesquiterpene
Eudesma-2,4,11-triene	0.30*	0.18	Sesquiterpene
γ -Muurolene	[0.30]*	0.03	Sesquiterpene
Germacrene D	0.10	0.15	Sesquiterpene
β -Selinene	6.38	6.15	Sesquiterpene
α -Selinene	1.61	[1.44]*	Sesquiterpene
Unknown	[1.61]*		Sesquiterpene
Curzerene	[1.61]*	0.01	Sesquiterpenic ether
α -Muurolene	0.03	0.02	Sesquiterpene
Shyobunone	0.79*	0.03	Sesquiterpenic ketone
β -Bisabolene	[0.79]*	[1.06]*	Sesquiterpene
7-epi- α -Selinene	0.11	[0.59]*	Sesquiterpene
δ -Cadinene	0.41*	[0.59]*	Sesquiterpene
<i>trans</i> -Calamenene	[0.41]*	0.04	Sesquiterpene
<i>trans</i> -Cadina-1,4-diene	0.10	0.07	Sesquiterpene
α -Calacorene	0.04	0.03	Sesquiterpene
(<i>E</i>)- α -Bisabolene	0.06	[0.08]*	Sesquiterpene
α -Elemol	0.01	0.01	Sesquiterpenic alcohol
Germacrene B	0.12	0.08	Sesquiterpene
Palustrol	0.13	0.13	Sesquiterpenic alcohol
Caryophyllene oxide isomer	0.03*	0.01	Sesquiterpenic ether
Caryophyllene oxide	[0.03]*	0.02	Sesquiterpenic ether
β -Copaen-4 α -ol	0.08	0.04	Sesquiterpenic alcohol
Viridiflorol	[0.08]	0.04	Sesquiterpenic alcohol
Unknown	0.04	0.03	Oxygenated sesquiterpene
Ledol	0.07	0.06	Sesquiterpenic alcohol
Unknown	0.48*	0.02	Oxygenated sesquiterpene
Eudesm-5-en-11-ol	[0.48]*	0.42	Sesquiterpenic alcohol
Humulene epoxide II	[0.48]*	0.02	Sesquiterpenic ether
Unknown	0.03	0.03	Oxygenated sesquiterpene
1-epi-Cubenol	0.04	0.04	Sesquiterpenic alcohol
Unknown	0.05		Unknown
Cubenol	0.02	[0.29]*	Sesquiterpenic alcohol
Unknown	0.03		Oxygenated sesquiterpene
Unknown	0.02	0.01	Oxygenated sesquiterpene
Unknown	0.08	0.39*	Oxygenated sesquiterpene

Unknown	0.06		Oxygenated sesquiterpene
Germacone	0.17	0.17	Sesquiterpenic ketone
Unknown	0.06	0.06	Oxygenated sesquiterpene
2,2,7,7- Tetramethyltricyclo[6.2.1.0(1,6)]undec- 4-en-3-one?	0.03		Sesquiterpenic ketone
Cyclocolorenone	0.40	[0.39]*	Sesquiterpenic ketone
Eudesma-3,11-dien-2-one	0.26	0.25	Sesquiterpenic ketone
Unknown		0.05	Monoterpene
Total identified	97.27%	96.60%	

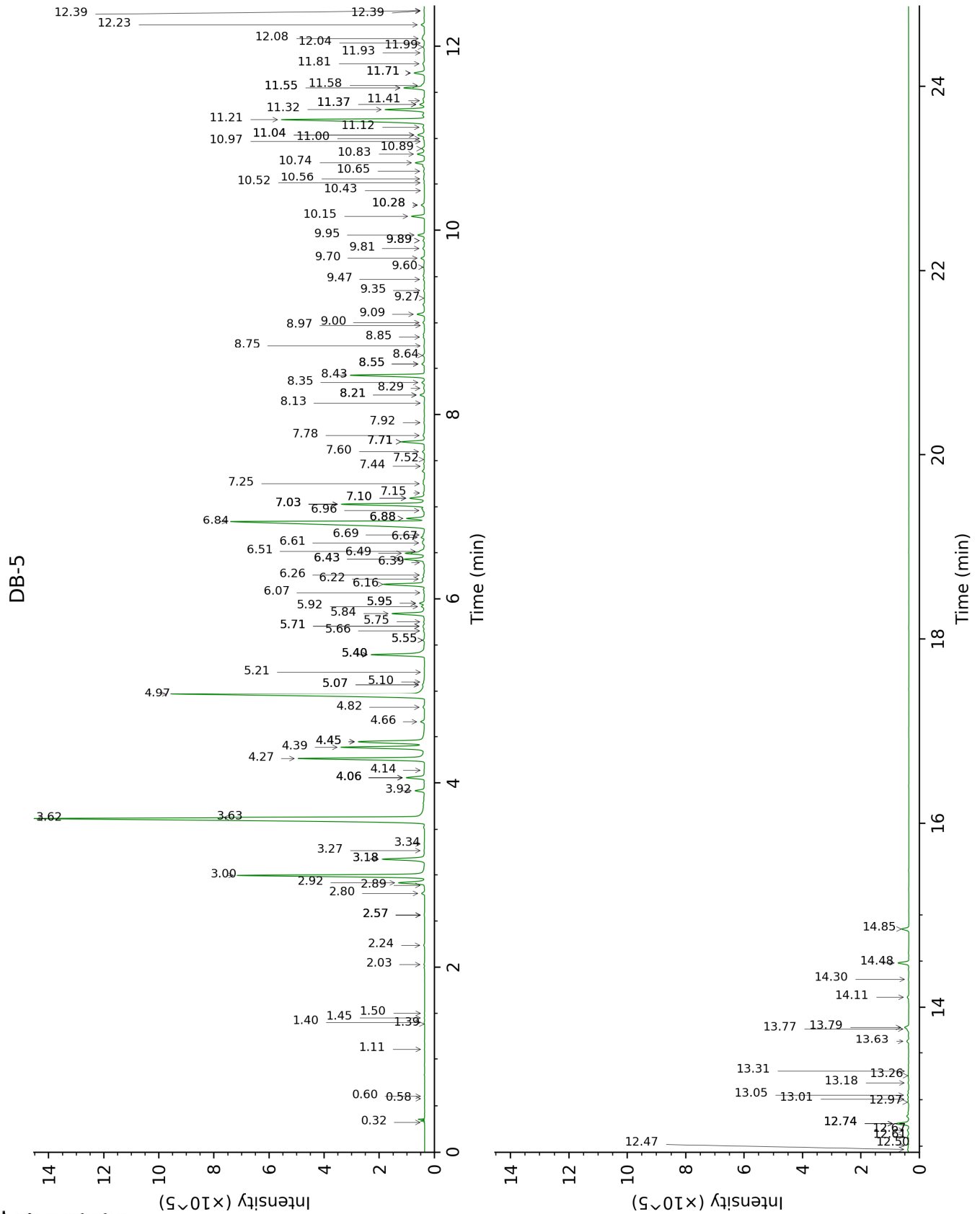
*: Two or more compounds are coeluting on this column

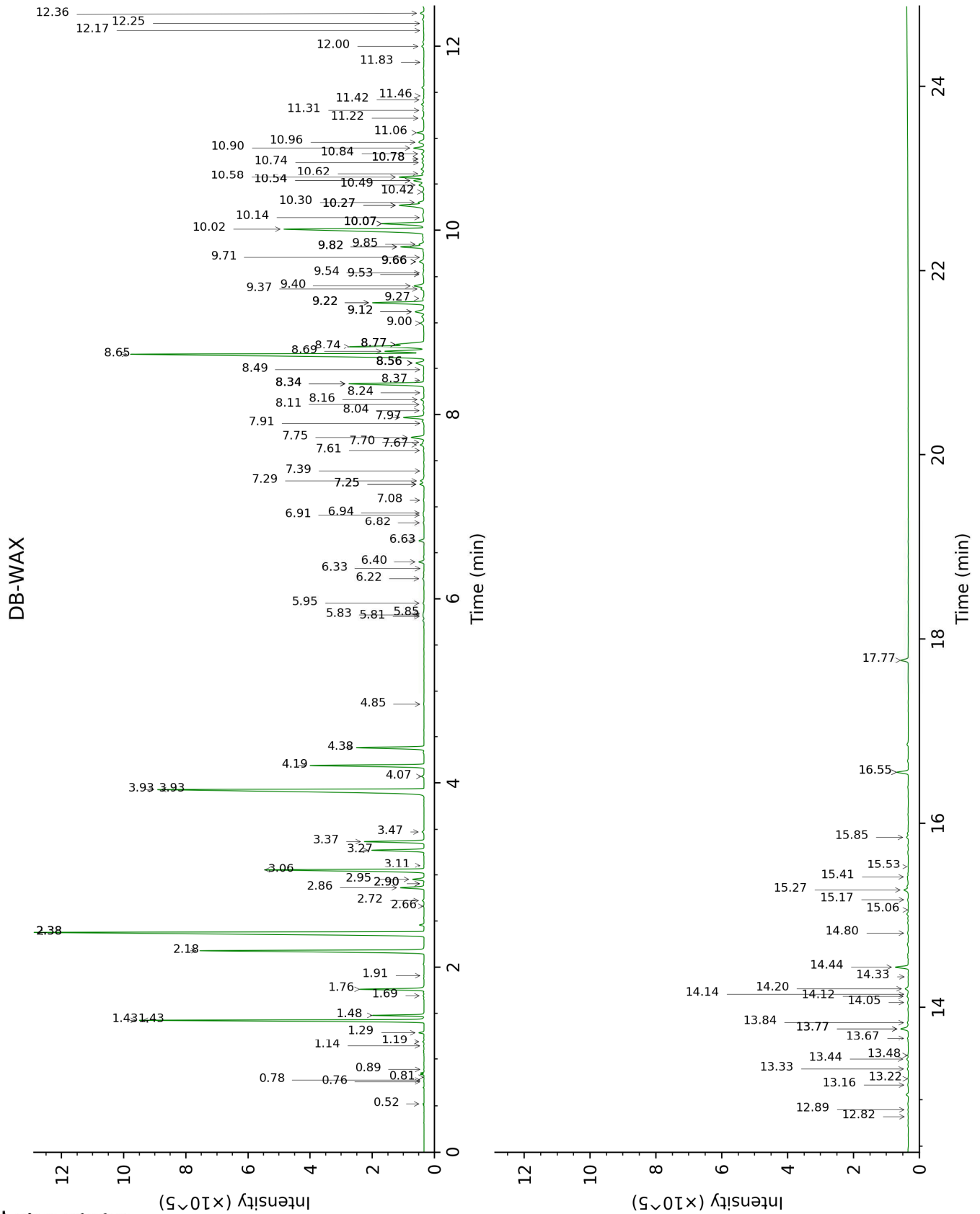
[xx]: Duplicate percentage due to coelutions, not taken account in the identified total

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

Note: no correction factor was applied

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FULL ANALYSIS DATA

Identification	Column DB-5			Column DB-WAX		
	R.T	R.I	%	R.T	R.I	%
Ethanol	0.32	497	0.01	0.89	911	tr
Isovaleral	0.58	638	tr	0.78	887	tr
2-Methylbutyral	0.60	648	tr	0.76	880	tr
Toluene	1.11	755	tr	1.43*	997	6.94
Hexanal	1.39	797	tr	1.91	1045	tr
Octane	1.40	799	0.01	0.52	790	0.01
Unknown [m/z 93, 91 (71), 77 (54), 108 (41)]	1.45	805	0.01			
Unknown [m/z 93, 91 (76), 77 (49), 108 (41)]	1.50	809	0.01			
(3Z)-Hexenol	2.03	854	0.02	5.85	1349	0.02
Unknown [m/z 79, 78 (45), 91 (28), 77 (28), 41 (13), 80 (12), 107 (11)... 122 (1)]	2.24	872	0.03	1.19	959	0.03
Bornylene	2.57*	900	0.02	1.14	952	0.01
Heptanal	2.57*	900	[0.02]	3.11	1151	tr
Nonane	2.57*	900	[0.02]	0.81	897	tr
Tricyclene	2.80	916	0.11	1.29	976	0.11
Cumene	2.89	922	0.01	2.90*	1135	0.02
α -Thujene	2.92	924	0.99	1.48	1003	1.02
α -Pinene	3.00	929	6.95	1.43*	997	[6.94]
Camphene	3.18*	941	1.72	1.76	1030	1.58
α -Fenchene	3.18*	941	[1.72]	1.69	1024	0.02
Thuja-2,4(10)-diene	3.27	947	0.03	2.38*	1092	14.23
Benzaldehyde	3.34	952	0.02	7.39	1461	0.02
Sabinene	3.62†	971	21.02	2.38*	1092	[14.23]
β -Pinene	3.63†	972	[21.02]	2.18	1072	6.94
Myrcene	3.92	991	0.36	2.95	1139	0.32
α -Phellandrene	4.06*	1000	0.70	2.86	1132	0.66
Menthatriene isomer I	4.06*	1000	[0.70]	3.47	1178	0.06
Pseudolimonene	4.06*	1000	[0.70]	2.90*	1135	[0.02]
Δ^3 -Carene	4.14	1006	0.02	2.66	1116	0.01
α -Terpinene	4.27	1014	4.72	3.06	1146	4.82
para-Cymene	4.39	1021	3.29	4.19	1231	3.32
Limonene	4.45*	1025	3.25	3.28	1163	1.45
β -Phellandrene	4.45*	1025	[3.25]	3.37	1170	1.63
(Z)- β -Ocimene	4.66	1039	0.14	3.93*	1213	11.59
(E)- β -Ocimene	4.82	1048	0.06	4.07	1223	0.07
γ -Terpinene	4.97	1058	11.28	3.93*	1213	[11.59]
Unknown [m/z 95, 109 (88), 41 (79), 81 (77), 55 (65), 79 (64), 43 (55)... 137 (22), 150 (8)]	5.07*	1064	0.10	5.83	1348	0.03
cis-Sabinene hydrate	5.07*	1064	[0.10]	6.94	1428	0.03
Unknown [m/z 79, 93 (60), 43 (40), 94 (35), 137 (33), 77 (26), 91 (20), 152 (18)]	5.10	1066	0.03	4.85	1278	0.02
Octanol	5.21	1073	0.01	8.24	1525	0.02
Terpinolene	5.40*	1085	2.14	4.38	1245	1.97
para-Cymenene	5.40*	1085	[2.14]	6.40	1388	0.16
Unknown [m/z 97, 71 (96), 79 (90), 43	5.40*	1085	[2.14]	7.70	1484	0.04

(47), 41 (42)... 140 (14)]						
<i>trans</i> -Sabinene hydrate	5.55*	1095	0.06	8.04	1510	0.04
Unknown [m/z 111, 43 (73), 69 (58), 41 (38), 55 (38)... 125 (19), 140 (1)]	5.55*	1095	[0.06]	5.81	1346	0.03
Linalool	5.66	1101	0.04	8.11	1515	0.04
Unknown [m/z 119, 109 (94), 43 (61), 95 (56), 91 (48), 77 (32), 152 (32), 137 (31), 134 (24)]	5.70*	1104	0.09	8.56*	1550	0.38
Nonanal	5.70*	1104	[0.09]	5.95	1357	0.04
<i>para</i> -Mentha-1,3,8-triene	5.75	1107	0.04	6.22	1376	0.05
Dehydrosabinaketon	5.84	1113	1.25	8.69	1560	1.24
<i>cis</i> - <i>para</i> -Menth-2-en-1-ol	5.92	1118	0.12	8.16	1519	0.10
α -Campholenal	5.95*	1120	0.18	7.08	1438	0.03
Unknown [m/z 81, 67 (86), 79 (74), 109 (69), 41 (45), 91 (29), 77 (29), 123 (29)]	5.95*	1120	[0.18]	6.63	1405	0.16
4-Hydroxy-4-methylcyclohex-2-enone	6.07	1128	0.03	14.12	2028	0.05
<i>trans</i> -Pinocarveol	6.16	1133	1.60	9.22*	1601	1.65
Camphor	6.22	1137	0.11	7.28†	1453	[0.29]
Epoxyterpinolene	6.26	1140	0.07	6.82	1419	0.03
<i>para</i> -Vinylanisole	6.39	1148	0.05	9.52	1626	0.05
Sabinaketon	6.43*	1151	0.80	8.77*†	1566	[3.75]
Unknown [m/z 67, 81 (99), 79 (78), 109 (67), 41 (47), 77 (31), 91 (29)... 121 (22), 123 (20)... 152 (5)]	6.43*	1151	[0.80]	7.25*†	1451	0.29
Pinocarvone	6.49	1155	0.71	7.97	1504	0.70
Unknown [m/z 123, 81 (46), 43 (45), 95 (34), 166 (30)]	6.51	1156	0.14	9.00	1584	0.15
Borneol	6.61	1162	0.06	9.82*	1650	0.75
Isopinocampone	6.67	1166	0.13	7.67	1482	0.14
<i>cis</i> -Sabinol	6.69	1168	0.07	10.96	1744	0.25
Terpinen-4-ol	6.84	1177	11.81	8.65	1557	11.90
Thuj-3-en-10-al	6.88*	1180	0.64	8.77*†	1566	[3.75]
Cryptone	6.88*	1180	[0.64]	9.27	1605	0.06
<i>trans</i> -Isocarveol	6.96	1185	0.04	11.06	1753	0.22
Myrtenal	7.03*	1189	3.15	8.74†	1564	3.75
α -Terpineol	7.03*	1189	[3.15]	9.82*	1650	[0.75]
<i>cis</i> -4-Caranone	7.03*	1189	[3.15]	6.33	1383	tr
Myrtenol	7.10*	1194	0.59	10.90	1739	0.33
<i>cis</i> -Piperitol	7.10*	1194	[0.59]	9.66*	1637	0.21
<i>trans</i> -Isopiperitenol	7.15	1197	0.06	10.42	1698	0.06
<i>trans</i> -Piperitol	7.25	1204	0.07	10.49†	1704	0.59
<i>trans</i> -Carveol	7.44	1216	0.01	11.46	1787	0.01
Unknown [m/z 43, 97 (72), 41 (44), 71 (27), 55 (26), 82 (25)...]	7.52	1221	0.02			
<i>cis</i> - <i>para</i> -Mentha-1(7),8-dien-2-ol	7.60	1227	0.08	12.00	1834	0.08
Unknown [m/z 137, 152 (28), 43 (25), 91 (24), 109 (23), 119 (19)]	7.71*	1234	0.83	11.42	1783	0.05
Cuminal	7.71*	1234	[0.83]	10.58	1712	0.81
Carvone	7.78	1239	0.08	10.07*	1670	1.44
Unknown [m/z 43, 82 (79), 109 (69), 110 (65), 95 (38), 41 (36)...]	7.92	1248	0.03			
Methyl citronellate	8.13	1262	0.02	8.34*	1532	2.62

Phellandral	8.21*	1268	0.17	10.07*	1670	[1.44]
Perillaldehyde	8.21*	1268	[0.17]	10.78*	1729	0.08
Vitispirane	8.29	1273	0.04	7.61	1478	0.03
α -Terpinen-7-al	8.35	1277	0.10	10.84	1734	0.09
Bornyl acetate	8.43	1282	2.62	8.34*	1532	[2.62]
Cuminol	8.55*	1290	0.12	14.33	2049	0.01
para-Cymen-7-ol	8.55*	1290	[0.12]	14.20	2036	0.11
Perillyl alcohol	8.64	1297	0.07	13.33	1954	0.04
Thymol	8.75	1304	0.05	15.17	2130	0.03
Carvacrol	8.85	1311	0.05	15.41	2155	0.03
Unknown [m/z 97, 112 (92), 83 (62), 43 (44), 41 (25)... 170? (4)]	8.97	1320	0.01	15.06	2119	0.01
Myrtenyl acetate	9.00	1322	0.06	9.66*	1637	[0.21]
1,4-para-Menthadien-7-ol	9.09	1328	0.28	13.77*	1994	0.29
Unknown [m/z 133, 105 (45), 91 (38), 119 (36)... 150 (3)]	9.27	1341	0.01			
α -Cubebene	9.35	1346	0.03	6.91	1426	0.03
Citronellyl acetate	9.47	1355	0.04	9.54	1627	0.02
Neryl acetate	9.60	1364	0.08	10.27*	1686	1.06
α -Copaene	9.70	1371	0.14	7.25*†	1451	[0.29]
<i>cis</i> - β -Elemene	9.81	1379	0.07	8.34*	1532	[2.62]
Geranyl acetate	9.89*	1385	0.06	10.62	1715	0.09
β -Cubebene	9.89*	1385	[0.06]	7.91	1499	0.01
β -Elemene	9.95	1389	0.24	8.56*	1550	[0.38]
α -Gurjunene	10.15	1403	0.47	7.75	1488	0.48
β -Caryophyllene	10.28*	1412	0.15	8.56*	1550	[0.38]
<i>cis</i> - α -Bergamotene	10.28*	1412	[0.15]	8.37	1535	0.02
β -Copaene	10.43	1424	0.01	8.49	1544	0.01
γ -Elemene	10.52	1430	0.02	9.12*	1593	0.36
<i>trans</i> - α -Bergamotene	10.56	1433	0.04	8.56*	1550	[0.38]
<i>cis</i> - β -Bergamotene?	10.65	1440	0.04			
α -Humulene	10.74	1447	0.35	9.40	1616	0.38
allo-Aromadendrene	10.83	1454	0.29	9.12*	1593	[0.36]
(<i>E</i>)- β -Farnesene	10.89	1458	0.11	9.66*	1637	[0.21]
γ -Gurjunene	10.97	1464	0.01	9.22*	1601	[1.65]
<i>trans</i> -Cadina-1(6),4-diene	11.00	1466	0.05	9.37	1613	0.11
Eudesma-2,4,11-triene	11.04*	1469	0.30	10.30	1689	0.18
γ -Murolene	11.04*	1469	[0.30]	9.71	1641	0.03
Germacrene D	11.12	1476	0.10	9.85	1652	0.15
β -Selinene	11.21	1482	6.38	10.02	1665	6.15
α -Selinene	11.32†	1490	1.61	10.07*	1670	[1.44]
Unknown [m/z 93, 105 (63), 119 (60), 91 (58), 107 (55), 41 (51), 69 (44), 79 (44), 202 (43)]	11.37*†	1494	[1.61]			
Curzerene	11.37*†	1494	[1.61]	11.83	1818	0.01
α -Murolene	11.41	1497	0.03	10.14	1675	0.02
Shyobunone	11.55*	1508	0.79	12.17	1849	0.03
β -Bisabolene	11.55*	1508	[0.79]	10.27*	1686	[1.06]
7-epi- α -Selinene	11.58	1510	0.11	10.54*†	1708	[0.59]
δ -Cadinene	11.71*	1520	0.41	10.54*†	1708	[0.59]
<i>trans</i> -Calamenene	11.71*	1520	[0.41]	11.31	1773	0.04
<i>trans</i> -Cadina-1,4-diene	11.81	1528	0.10	10.74	1726	0.07

α-Calacorene	11.93	1537	0.04	12.25	1856	0.03
(E)-α-Bisabolene	11.99	1542	0.06	10.78*	1729	[0.08]
α-Elemol	12.04	1546	0.01	14.14	2030	0.01
Germacrene B	12.08	1550	0.12	11.22	1766	0.08
Palustrol	12.23	1561	0.13	12.36	1865	0.13
Caryophyllene oxide isomer	12.39*	1573	0.03	12.82	1906	0.01
Caryophyllene oxide	12.39*	1573	[0.03]	12.89	1914	0.02
β-Copaen-4α-ol	12.47†	1580	0.08	14.80	2094	0.04
Viridiflorol	12.50†	1582	[0.08]	14.06	2022	0.04
Unknown [m/z 106, 119 (63), 134 (54), 91 (45), 79 (35), 105 (22)... 218? (3)]	12.61	1591	0.04	13.16	1938	0.03
Ledol	12.67	1596	0.07	13.44	1964	0.06
Unknown [m/z 205, 43 (38), 41 (25), 91 (24), 79 (24), 93 (23)... 220 (12)]	12.74*	1601	0.48	13.22	1944	0.02
Eudesm-5-en-11-ol	12.74*	1601	[0.48]	14.44	2059	0.42
Humulene epoxide II	12.74*	1601	[0.48]	13.48	1967	0.02
Unknown [m/z 106, 119 (64), 134 (51), 91 (39), 79 (27), 105 (23), 92 (22)... 218? (3)]	12.97	1620	0.03	13.67	1985	0.03
1-epi-Cubenol	13.00	1623	0.04	13.84	2001	0.04
Unknown [m/z 145, 59 (97), 161 (87), 218 (76), 43 (76), 179 (63)...]	13.05	1627	0.05			
Cubenol	13.18	1638	0.02	13.77*	1994	[0.29]
Unknown [m/z 41, 91 (96), 79 (88), 69 (82), 123 (80), 93 (80)... 220 (8)]	13.26	1644	0.03			
Unknown [m/z 43, 81 (84), 41 (64), 67 (62), 95 (58), 79 (58)... 204 (48), 220 (2)]	13.31	1648	0.02	15.53	2166	0.01
Unknown [m/z 107, 91 (95), 93 (87), 79 (86), 105 (78), 41 (76), 95 (72)... 220 (18)]	13.63	1674	0.08	16.55*	2272	0.39
Unknown [m/z 107, 67 (94), 55 (86), 109 (84), 81 (84), 41 (77)... 220 (61)]	13.77	1686	0.06			
Germacrone	13.78	1687	0.17	15.27	2141	0.17
Unknown [m/z 81, 67 (99), 55 (98), 107 (96), 109 (94), 41 (88), 93 (84), 95 (78), 220 (71)]	14.11	1715	0.06	15.85	2199	0.06
2,2,7,7- Tetramethyltricyclo[6.2.1.0(1,6)]undec- 4-en-3-one?	14.30	1732	0.03			
Cyclocolorenone	14.48	1747	0.40	16.55*	2272	[0.39]
Eudesma-3,11-dien-2-one	14.85	1779	0.26	17.77	2403	0.25
Unknown [m/z 799, 78 (44), 77 (30), 91 (29), 122 (17)]				2.72	1121	0.05
Total identified		97.27%			96.60%	
Total reported		97.94%			97.31%	

*: 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