



316 Old Hickory Blvd East, Madison, TN 37115  
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 Healing Body, Mind and Spirit with Pure Essential Oils  
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## Scotch Pine Pinus Sylvestrus L.

Batch No. FR-B765034  
 France, organically produced

### Monoterpenes 83.87%

α pinene	32.58
tricyclene	0.49
α thujene	0.17
α fenchene	0.03
camphene	2.09
Thuja-2,4(10)-diene	0.02
β pinene	6.45
sabinene	0.31
3 para-menthene	0.31
δ 3 carene	26.96
myrcene	4.32
α terpinene	0.27
limonene	5.40
α phellandrene	0.13
β phellandrene	0.03
pseudolimonene	0.01
γ terpinene	0.51
para cymenene	0.08
para cymene	0.18
terpinolene	2.68
(Z)-β-Ocimene	0.04
(E)-β-Ocimene	0.81

### Ethers 3.29%

1,8 cineole	3.20
thymol methyl ether	0.06
caryophyllene oxide	0.02
humulene epoxide II	0.01

### Monoterpenols 0.76%

myrtenol	0.03
linalol	0.02
endo-fenchol	0.03
trans-para-Mentha-2,8-dien-1-ol	0.01
trans-pinocarveol	0.05
borneol	0.03
terpinen-4-ol	0.27
meta-cymen-8-ol	0.03
para-cymen-8-ol	0.02
α terpineol	0.23
trans-carveol	0.04

### Ketones %

camphor	0.02
nopinone	0.02
trans-verbenaol	0.01
pinocarpone	0.01
pinocamphone	0.02
isopinocamphone	0.02
verbenaone	0.06
carvone	0.01
(7Z)-Undecen-2-one	0.08
2-undecanone	0.10

### Esters 0.61%

bornyl acetate	0.27
isobornyl acetate	0.01
α terpinyl acetate	0.31
geranyl acetate	0.02

### Aldehydes 0.02%

α campholenal	0.01
myrtenal	0.01

### Sesquiterpenes 8.9%

bicycloelemene	0.02
α longipinene	0.06
α cubebene	0.04
longicyclene	0.01
α ylangene	0.02
α copaene	0.13
β bourbonene	0.02
β elemene	0.33
β longipinene	0.01
longifolene	0.20
β caryophyllene	1.02
β copaene	0.05
aromadendrene	0.21
6,9-Guaiadiene	0.08
cis-Muurolo-3,5-diene	0.09
α humulene	0.19
cis-Cadina-1(6),4-diene	0.03
9-epi-β-Caryophyllene	0.10
cis-Muurolo-4(15),5-diene	0.20
trans-Cadina-1(6),4-diene	0.18
γ muuroloene	0.29
germacrene d	0.34
β selinene	0.34
trans-Muurolo-4(15),5-diene	0.12
viridiflorene	0.03
α selinene	0.32
bicyclogermacrene	0.4
β himachalene	0.07
α muuroloene	0.5
γ cadinene	0.94
trans-calamenene	0.02
δ cadinene	2.2
α calacorene	0.02
zonarene	0.12
trans-Cadina-1,4-diene	0.08
α cadinene	0.1
α calacorene	0.02

Raw Material: Pinus Sylvestrus L.  
 INCI Name: PINUS SYLVESTRIS LEAF OIL  
 Production Method: Steam distilled, Needles  
 Analyzed: 5/2018



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## Scotch Pine page 2

Pinus Sylvestrus L.

Sesquiterpenols	0.82%
spathulenol	0.11
longiborneol	0.01
guaiol	0.02
10-epi-cubenol	0.01
10-epi- $\gamma$ -eudesmol	0.03
1-epi-cubenol	0.06
$\tau$ cadinol	0.15
$\tau$ muurolol	0.15
$\beta$ eudesmol	0.05
$\alpha$ cadinol	0.23

Deterpines	0.01%
beyerene	0.01

**Date :** May 30, 2018

**CERTIFICATE OF ANALYSIS – GC PROFILING**

**SAMPLE IDENTIFICATION**

**Internal code :** 18E23-ALK2-1-CC

**Customer identification :** HE Pinus Sylvestris - B-PISYCAN04SC

**Type :** Essential oil

**Source :** *Pinus sylvestris*

**Customer :** Nature's Gift

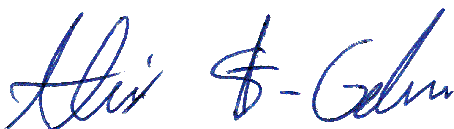
**ANALYSIS**

**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 :** Sarah-Eve Tremblay, M. Sc. A., Chimiste

**Analysis date:** May 29, 2018

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:** Clear liquid

**Refractive index:**  $1.4733 \pm 0.0003$  (20 °C)

*CONCLUSION*

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

ANALYSIS SUMMARY

Identification	DB-5 (%)	DB-WAX (%)	Classe
Toluene	0.02	0.01	Simple phenolic
Hexanal	tr	tr	Aliphatic aldehyde
Santene	tr	tr	Monoterpene
Tricyclene	0.49	0.50	Monoterpene
$\alpha$ -Thujene	0.17	0.18	Monoterpene
$\alpha$ -Pinene	32.58	32.62	Monoterpene
Camphene	2.12*	2.09	Monoterpene
$\alpha$ -Fenchene	[2.12]*	0.03	Monoterpene
Thuja-2,4(10)-diene	0.02	0.31*	Monoterpene
$\beta$ -Pinene	6.72*	6.45	Monoterpene
Sabinene	[6.72]*	[0.31]*	Monoterpene
Myrcene	4.63*	4.73	Monoterpene
3-para-Menthene?	[4.63]*	[0.31]*	Monoterpene
Octan-3-ol	0.01	0.01	Aliphatic alcohol
$\alpha$ -Phellandrene	0.14*	0.13	Monoterpene
Pseudolimonene	[0.14]*	0.01	Monoterpene
$\Delta^3$ -Carene	26.96	26.96	Monoterpene
$\alpha$ -Terpinene	0.27	0.27	Monoterpene
Carvomenthene	0.01	0.01	Aliphatic alcohol
para-Cymene	0.18	0.19	Monoterpene
Limonene	8.60*	5.40	Monoterpene
1,8-Cineole	[8.60]*	3.23*	Monoterpenic ether
$\beta$ -Phellandrene	[8.60]*	[3.23]*	Monoterpene
(Z)- $\beta$ -Ocimene	0.04	0.05	Monoterpene
(E)- $\beta$ -Ocimene	0.81	0.82	Monoterpene
$\gamma$ -Terpinene	0.51	0.52	Monoterpene
Unknown	0.01	0.01	Oxygenated monoterpene
para-Cymenene	2.87	0.08	Monoterpene
Terpinolene	[2.87]	2.68	Monoterpene
$\alpha$ -Pinene oxide	tr	tr	Monoterpenic ether
Linalool	0.02	0.03	Monoterpenic alcohol
endo-Fenchol	0.03	0.06*	Monoterpenic alcohol
<i>trans</i> -para-Mentha-2,8-dien-1-ol	0.01	0.04	Monoterpenic alcohol
$\alpha$ -Campholenal	0.01	0.01	Monoterpenic aldehyde
Nopinone	0.02	0.27*	Normonoterpenic ketone
<i>trans</i> -Pinocarveol	0.05	0.07	Monoterpenic alcohol
Camphor	0.02	0.01	Monoterpenic ketone
<i>trans</i> -Verbenol	0.01	0.01	Monoterpenic alcohol
Pinocamphone	0.02	0.02	Monoterpenic ketone
Pinocarvone	0.01	0.01	Monoterpenic ketone
Borneol	0.03	0.62*	Monoterpenic alcohol
Isopinocamphone	0.02	0.02	Monoterpenic ketone
Terpinen-4-ol	0.27	0.46*	Monoterpenic alcohol
meta-Cymen-8-ol	0.03	0.02	Monoterpenic alcohol
para-Cymen-8-ol	0.02	0.03	Monoterpenic alcohol
$\alpha$ -Terpineol	0.23	[0.62]*	Monoterpenic alcohol
Myrtenal	0.01	0.02	Monoterpenic aldehyde
Myrtenol	0.03	0.02	Monoterpenic alcohol

Verbenone	0.06	0.30*	Monoterpenic ketone
<i>trans</i> -Carveol	0.04	0.04	Monoterpenic alcohol
Thymol methyl ether	0.06	1.34*	Monoterpenic ether
Carvone	0.01	0.03	Monoterpenic ketone
(7Z)-Undecen-2-one	0.08		Aliphatic ketone
Bornyl acetate	0.29*	[0.27]*	Monoterpenic ester
Isobornyl acetate	[0.29]*	0.01	Monoterpenic ester
2-Undecanone	0.10	0.17*	Aliphatic ketone
Bicycloelemene	0.02	0.02	Sesquiterpene
$\alpha$ -Longipinene	0.06	0.13*	Sesquiterpene
$\alpha$ -Cubebene	0.04	[0.13]*	Sesquiterpene
$\alpha$ -Terpinyl acetate	0.31	0.36	Monoterpenic ester
Longicyclene	0.01	0.01	Sesquiterpene
$\alpha$ -Ylangene	0.02	0.01	Sesquiterpene
$\alpha$ -Copaene	0.13	0.13	Sesquiterpene
$\beta$ -Bourbonene	0.02	0.02	Sesquiterpene
Geranyl acetate	0.02	0.01	Monoterpenic ester
$\beta$ -Elemene	0.33	[1.34]*	Sesquiterpene
$\beta$ -Longipinene	0.01	0.01	Sesquiterpene
Longifolene	0.20	0.18	Sesquiterpene
Methyleugenol	0.02	0.01	Phenylpropanoid
$\beta$ -Caryophyllene	1.02	[1.34]*	Sesquiterpene
$\beta$ -Copaene	0.05	[0.06]*	Sesquiterpene
Aromadendrene	0.21	[0.46]*	Sesquiterpene
6,9-Guaiadiene	0.08	[0.17]*	Sesquiterpene
<i>cis</i> -Muuro-la-3,5-diene	0.09	0.08	Sesquiterpene
$\alpha$ -Humulene	0.19	0.18	Sesquiterpene
<i>cis</i> -Cadina-1(6),4-diene	0.10*	0.03	Sesquiterpene
9-epi- $\beta$ -Caryophyllene	[0.10]*	0.24*	Sesquiterpene
<i>cis</i> -Muuro-la-4(15),5-diene	0.20	[0.24]*	Sesquiterpene
<i>trans</i> -Cadina-1(6),4-diene	0.18	0.14	Sesquiterpene
$\gamma$ -Muuro-lene	0.29	0.10	Sesquiterpene
Germacrene D	0.34	[0.62]*	Sesquiterpene
$\beta$ -Selinene	0.34	0.37	Sesquiterpene
<i>trans</i> -Muuro-la-4(15),5-diene	0.15*	0.12*	Sesquiterpene
Viridiflorene	[0.15]*	[0.30]*	Sesquiterpene
$\alpha$ -Selinene	0.87*	0.32	Sesquiterpene
Bicyclogermacrene	[0.87]*	0.40	Sesquiterpene
$\beta$ -Himachalene	0.57*	[0.12]*	Sesquiterpene
$\alpha$ -Muuro-lene	[0.57]*	0.50	Sesquiterpene
$\gamma$ -Cadinene	0.94	1.10*	Sesquiterpene
<i>trans</i> -Calamenene	2.34*	0.02	Sesquiterpene
$\delta$ -Cadinene	[2.34]*	2.20	Sesquiterpene
Zonarene	[2.34]*	[1.10]*	Sesquiterpene
<i>trans</i> -Cadina-1,4-diene	0.08	0.08	Sesquiterpene
$\alpha$ -Cadinene	0.10	0.12	Sesquiterpene
$\alpha$ -Calacorene	0.02	0.02*	Sesquiterpene
Isocaryophyllene epoxide B	tr	[0.02]*	Sesquiterpenic ether
Spathulenol	0.11	0.10	Sesquiterpenic alcohol
Caryophyllene oxide	0.02*	0.02	Sesquiterpenic ether
Caryophyllene oxide isomer	[0.02]*	tr	Sesquiterpenic ether
Longiborneol	0.01	tr	Sesquiterpenic alcohol

Guaiol	0.02	tr	Sesquiterpenic alcohol
Humulene epoxide II	0.01	0.01	Sesquiterpenic ether
10-epi-Cubenol	0.01		Sesquiterpenic alcohol
10-epi- $\gamma$ -Eudesmol	0.03		Sesquiterpenic alcohol
1-epi-Cubenol	0.06	0.06	Sesquiterpenic alcohol
$\tau$ -Cadinol	0.33*	0.15*	Sesquiterpenic alcohol
$\tau$ -Muurolool	[0.33]*	0.15	Sesquiterpenic alcohol
$\beta$ -Eudesmol	0.05	0.02	Sesquiterpenic alcohol
$\alpha$ -Cadinol	0.23	0.21	Sesquiterpenic alcohol
Beyerene	0.01	[0.15]*	Diterpene
Unknown	0.08	0.08	Unknown
<b>Total identified</b>	<b>98.92%</b>	<b>98.54%</b>	

\*: Two or more compounds are coeluting on this column

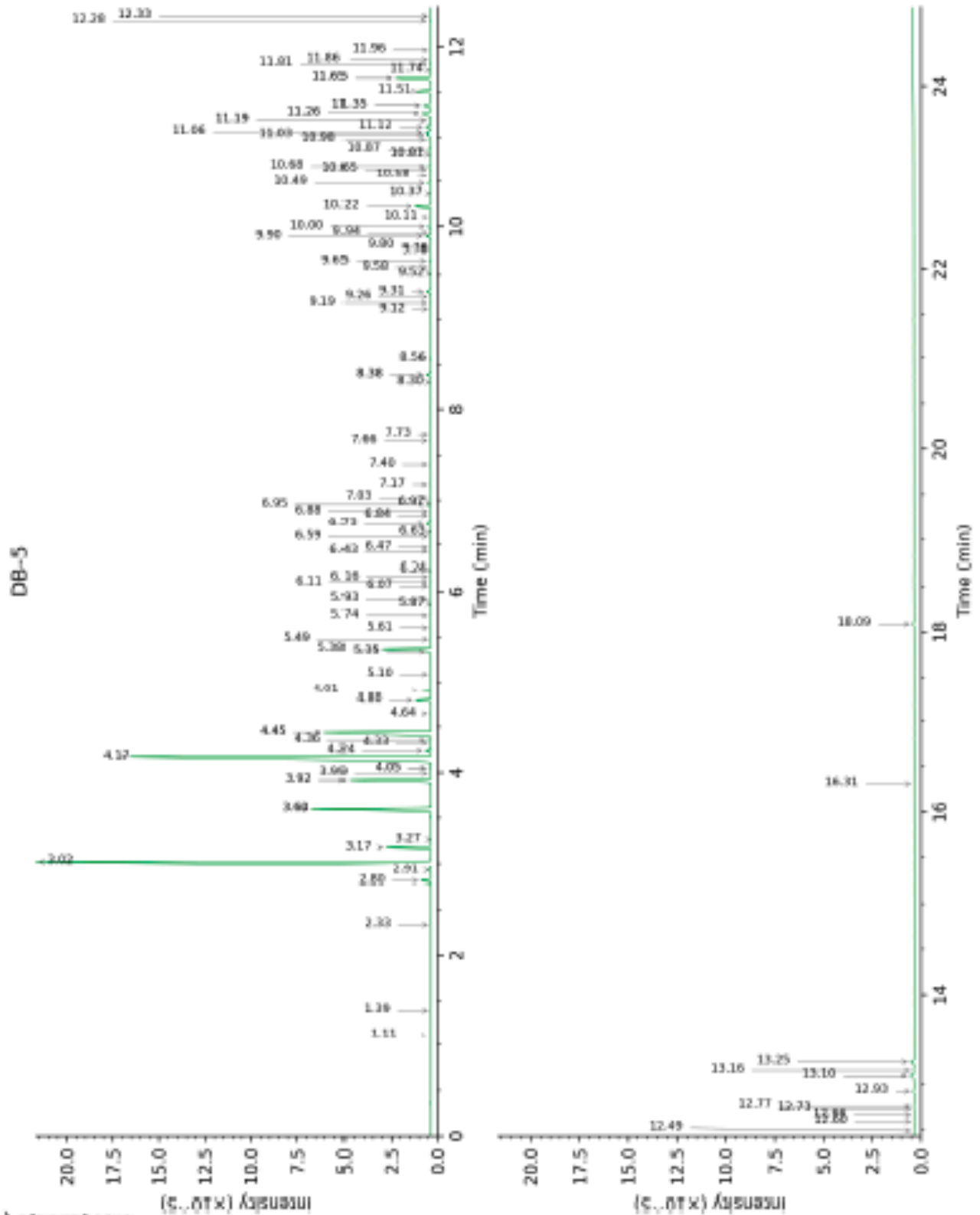
[xx]: Duplicate percentage due to coelutions, not taken account in the identified total

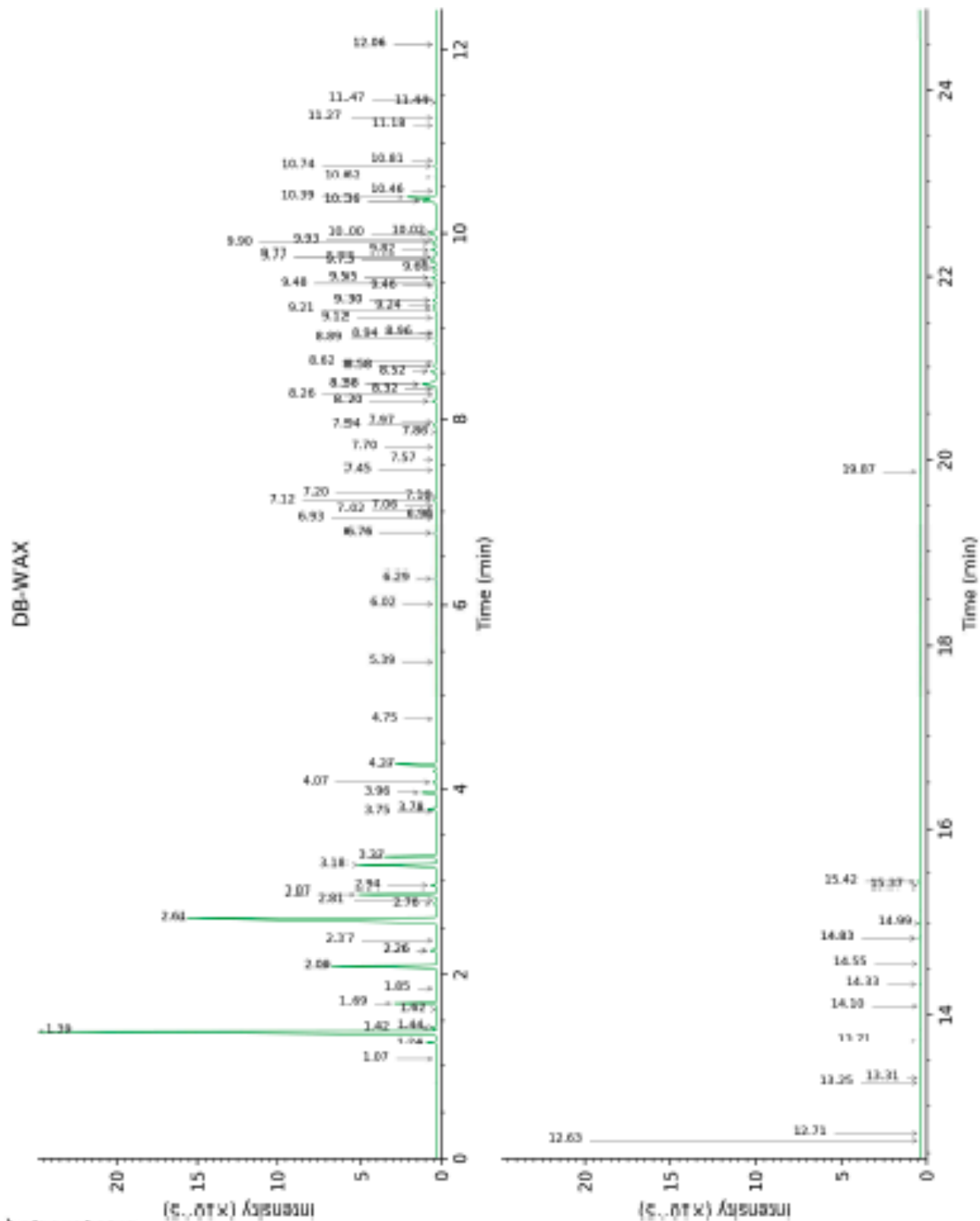
tr: The compound has been detected below 0.005% of total signal.

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	%
Toluene	1.11	755	0.02	1.44	1006	0.01
Hexanal	1.39	797	tr	1.85	1047	tr
Santene	2.34	881	tr	1.07	949	tr
Tricyclene	2.80	917	0.49	1.24	976	0.50
$\alpha$ -Thujene	2.91	925	0.17	1.42	1005	0.18
$\alpha$ -Pinene	3.02	932	32.58	1.39	1000	32.62
Camphene	3.18*	942	2.12	1.69	1031	2.09
$\alpha$ -Fenchene	3.18*	942	[2.12]	1.62	1025	0.03
Thuja-2,4(10)-diene	3.26	948	0.02	2.26*	1088	0.31
$\beta$ -Pinene	3.60*	971	6.72	2.09	1071	6.45
Sabinene	3.60*	971	[6.72]	2.26*	1088	[0.31]
Myrcene	3.92*	992	4.63	2.87	1138	4.73
3-para-Menthene?	3.92*	992	[4.63]	2.26*	1088	[0.31]
Octan-3-ol	3.99	998	0.01	6.02	1370	0.01
$\alpha$ -Phellandrene	4.05*	1001	0.14	2.76	1130	0.13
Pseudolimonene	4.05*	1001	[0.14]	2.81	1133	0.01
$\Delta^3$ -Carene	4.17	1009	26.96	2.61	1118	26.96
$\alpha$ -Terpinene	4.24	1014	0.27	2.94	1144	0.27
Carvomenthene	4.33	1019	0.01	2.37	1098	0.01
para-Cymene	4.36	1021	0.18	4.07	1229	0.19
Limonene	4.44*	1026	8.60	3.18	1162	5.40
1,8-Cineole	4.44*	1026	[8.60]	3.27*	1169	3.23
$\beta$ -Phellandrene	4.44*	1026	[8.60]	3.27*	1169	[3.23]
(Z)- $\beta$ -Ocimene	4.64	1039	0.04	3.75	1207	0.05
(E)- $\beta$ -Ocimene	4.80	1049	0.81	3.96	1221	0.82
$\gamma$ -Terpinene	4.91	1056	0.51	3.78	1209	0.52
Unknown [m/z 79, 93 (60), 43 (40), 94 (35), 137 (33), 77 (26), 91 (20), 152 (18)]	5.10	1068	0.01	4.75	1278	0.01
para-Cymenene	5.35†	1084	2.87	6.29	1389	0.08
Terpinolene	5.38†	1086	[2.87]	4.27	1244	2.68
$\alpha$ -Pinene oxide	5.48	1092	tr	5.39	1324	tr
Linalool	5.61	1100	0.02	7.98	1515	0.03
endo-Fenchol	5.74	1109	0.03	8.32*	1542	0.06
<i>trans</i> -para-Mentha-2,8-dien-1-ol	5.87	1117	0.01	8.94	1590	0.04
$\alpha$ -Campholenal	5.93	1121	0.01	6.96	1439	0.01
Nopinone	6.07	1130	0.02	8.20*	1532	0.27
<i>trans</i> -Pinocarveol	6.10	1132	0.05	9.12	1604	0.07
Camphor	6.16	1136	0.02	7.16	1454	0.01
<i>trans</i> -Verbenol	6.24	1141	0.01	9.46	1632	0.01
Pinocamphone	6.43	1153	0.02	7.20	1457	0.02
Pinocarvone	6.47	1155	0.01	7.86	1506	0.01
Borneol	6.59	1163	0.03	9.73*	1654	0.62

Isopinocampone	6.64	1166	0.02	7.56	1484	0.02
Terpinen-4-ol	6.73	1172	0.27	8.52*	1557	0.46
meta-Cymen-8-ol	6.84	1179	0.03	11.44	1797	0.02
para-Cymen-8-ol	6.88	1182	0.02	11.47	1800	0.03
$\alpha$ -Terpineol	6.95	1187	0.23	9.73*	1654	[0.62]
Myrtenal	6.97	1188	0.01	8.62	1565	0.02
Myrtenol	7.03	1192	0.03	10.81	1743	0.02
Verbenone	7.18	1201	0.06	9.55*	1639	0.30
<i>trans</i> -Carveol	7.40	1216	0.04	11.27	1783	0.04
Thymol methyl ether	7.66	1233	0.06	8.38*	1546	1.34
Carvone	7.73	1238	0.01	9.93	1670	0.03
(7Z)-Undecen-2-one	8.30	1277	0.08			
Bornyl acetate	8.38*	1282	0.29	8.20*	1532	[0.27]
Isobornyl acetate	8.38*	1282	[0.29]	8.26	1538	0.01
2-Undecanone	8.56	1294	0.10	8.58*	1562	0.17
Bicycloelemene	9.12	1333	0.02	7.02	1443	0.02
$\alpha$ -Longipinene	9.19	1338	0.06	6.76*	1424	0.13
$\alpha$ -Cubebene	9.26	1343	0.04	6.76*	1424	[0.13]
$\alpha$ -Terpinyl acetate	9.31	1347	0.31	9.66	1648	0.36
Longicyclene	9.52	1361	0.01	7.06	1446	0.01
$\alpha$ -Ylangene	9.58	1366	0.02	6.93	1437	0.01
$\alpha$ -Copaene	9.65	1371	0.13	7.12	1451	0.13
$\beta$ -Bourbonene	9.76	1378	0.02	7.45	1475	0.02
Geranyl acetate	9.80	1381	0.02	10.46	1714	0.01
$\beta$ -Elemene	9.90	1388	0.33	8.38*	1546	[1.34]
$\beta$ -Longipinene	9.94	1391	0.01	7.70	1494	0.01
Longifolene	10.00	1395	0.20	7.94	1512	0.18
Methyleugenol	10.10	1403	0.02	13.25	1961	0.01
$\beta$ -Caryophyllene	10.22	1412	1.02	8.38*	1546	[1.34]
$\beta$ -Copaene	10.37	1422	0.05	8.32*	1542	[0.06]
Aromadendrene	10.49	1431	0.21	8.52*	1557	[0.46]
6,9-Guaiadiene	10.58	1438	0.08	8.58*	1562	[0.17]
<i>cis</i> -Muurolo-3,5-diene	10.65	1443	0.09	8.90	1587	0.08
$\alpha$ -Humulene	10.68	1446	0.19	9.24	1614	0.18
<i>cis</i> -Cadina-1(6),4-diene	10.81*	1456	0.10	8.96	1592	0.03
9-epi- $\beta$ -Caryophyllene	10.81*	1456	[0.10]	9.30*	1619	0.24
<i>cis</i> -Muurolo-4(15),5-diene	10.87	1460	0.20	9.30*	1619	[0.24]
<i>trans</i> -Cadina-1(6),4-diene	10.98	1468	0.18	9.21	1611	0.14
$\gamma$ -Muurolole	11.03	1472	0.29	9.48	1634	0.10
Germacrene D	11.06	1474	0.34	9.73*	1654	[0.62]
$\beta$ -Selinene	11.12	1478	0.34	9.82	1662	0.37
<i>trans</i> -Muurolo-4(15),5-diene	11.19*	1484	0.15	9.77*	1657	0.12
Viridiflorene	11.19*	1484	[0.15]	9.55*	1639	[0.30]
$\alpha$ -Selinene	11.26*	1489	0.87	9.90	1668	0.32

Bicyclogermacrene	11.26*	1489	[0.87]	10.02	1677	0.40
β-Himachalene	11.35*	1496	0.57	9.77*	1657	[0.12]
α-Muurolene	11.35*	1496	[0.57]	10.00	1676	0.50
γ-Cadinene	11.51	1508	0.94	10.36*	1705	1.10
<i>trans</i> -Calamenene	11.65*	1519	2.34	11.18	1776	0.02
δ-Cadinene	11.65*	1519	[2.34]	10.39	1708	2.20
Zonarene	11.65*	1519	[2.34]	10.36*	1705	[1.10]
<i>trans</i> -Cadina-1,4-diene	11.74	1526	0.08	10.62	1728	0.08
α-Cadinene	11.81	1532	0.10	10.74	1738	0.12
α-Calacorene	11.86	1535	0.02	12.06*	1852	0.02
Isocaryophyllene epoxide B	11.96	1544	tr	12.06*	1852	[0.02]
Spathulenol	12.28	1569	0.11	14.33	2064	0.10
Caryophyllene oxide	12.33*	1573	0.02	12.71	1910	0.02
Caryophyllene oxide isomer	12.33*	1573	[0.02]	12.64	1904	tr
Longiborneol	12.49	1586	0.01	14.56	2085	tr
Guaiol	12.60	1594	0.02	14.10	2041	tr
Humulene epoxide II	12.66	1599	0.01	13.31	1966	0.01
10-epi-Cubenol	12.73	1604	0.01			
10-epi-γ-Eudesmol	12.77	1607	0.03			
1-epi-Cubenol	12.93	1620	0.06	13.71	2004	0.06
τ-Cadinol	13.10*	1635	0.33	14.83*	2112	0.15
τ-Muurolol	13.10*	1635	[0.33]	14.99	2129	0.15
β-Eudesmol	13.16	1639	0.05	15.37	2167	0.02
α-Cadinol	13.25	1647	0.23	15.42	2171	0.21
Beyerene	16.31	1916	0.01	14.83*	2112	[0.15]
Unknown [m/z 191, 81 (47), 95 (41), 69 (39), 109 (32), 93 (32)...]	18.09	2089	0.08	19.87	2666	0.08
<b>Total identified</b>		<b>98.92%</b>			<b>98.54%</b>	
<b>Total reported</b>		<b>99.02%</b>			<b>98.63%</b>	

\*: 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