Date : January 23, 2019

Certificate of Analysis – GC Profiling

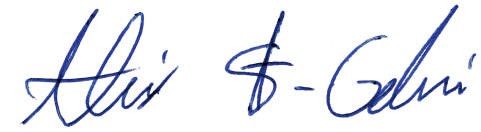
Sample identification

Internal code : 19A10-ORA13-1-CC
Customer identification : Sweet ginger
Type : Essential oil
Source : *Zingiber officinale*
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 : Benoit Roger, Ph. D.
Analysis date : January 16, 2019

Checked and approved by :



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

Note: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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.

Laboratoire PhytoChemia
628 Boulevard du Saguenay Ouest, Saguenay (Qc) G7J 1H4 | www.phytochemia.com

PHYSICOCHEMICAL DATA

Physical aspect: Light yellow liquid
Refractive index: 1.4920 ± 0.0003 (20 °C)

CONCLUSION

This sample contains some unusual compounds for sweet ginger. One of them (the unknown at RI=1621 on the DB-5 column) is usually identified in *Amyris balsamifera* and rarely elsewhere in our experience, or cadinols/muurolols which we have not seen previously in ginger oils. None of these point out clearly to an adulteration, but the sample can be considered irregular. Caution is advised.

628 Boulevard du Saguenay, Saguenay (Qc) G7J 1H4 | www.phytochemia.com

ANALYSIS SUMMARY

Identification	DB-5 (%)	DB-WAX (%)	Classe
Ethanol	0.05	0.07	Aliphatic alcohol
2-Methyl-3-buten-2-ol	0.01	0.01	Aliphatic alcohol
Toluene	0.02	0.01	Simple phenolic
2-Heptanone	0.01	0.01	Aliphatic ketone
2-Heptanol	0.02*	tr	Aliphatic alcohol
Nonane	[0.02]*		Alkane
Tricyclene	0.11	0.11	Monoterpene
α-Pinene	1.52	1.49*	Monoterpene
Camphene	5.82*	5.70	Monoterpene
α-Fenchene	[5.82]*	0.01	Monoterpene
β-Citronellene	[5.82]*	[1.49]*	Monoterpene
β-Pinene	0.17*	0.17	Monoterpene
Sabinene	[0.17]*		Monoterpene
6-Methyl-5-hepten-2-one	0.11	0.06	Aliphatic ketone
Myrcene	0.76	0.74	Monoterpene
α-Phellandrene	0.27*	0.20	Monoterpene
Unknown	[0.27]*	0.02	Unknown
Octanal	[0.27]*	0.04	Aliphatic aldehyde
Pseudolimonene	[0.27]*	0.01	Monoterpene
Δ3-Carene	0.02	0.02	Monoterpene
α-Terpinene	0.07	0.07	Monoterpene
para-Cymene	0.08	0.05*	Monoterpene
Limonene	1.60*	0.98	Monoterpene
β-Phellandrene	[1.60]*	3.49*	Monoterpene
Unknown	2.92*	0.02*	Unknown
1,8-Cineole	[2.92]*	[3.49]*	Monoterpenic ether
(*Z*)-β-Ocimene	0.01	0.01	Monoterpene
2-Heptyl acetate	0.01	0.01	Aliphatic ester
(*E*)-β-Ocimene	0.01	0.01	Monoterpene
γ-Terpinene	0.08	0.08	Monoterpene
cis-Sabinene hydrate	0.01	0.13*	Monoterpenic alcohol
cis-Linalool oxide (fur.)	tr	tr	Monoterpenic alcohol
Octanol	0.01	0.02	Aliphatic alcohol
para-Cymenene	0.38*	0.12	Monoterpene
Terpinolene	[0.38]*	0.25	Monoterpene
trans-Linalool oxide (fur.)	[0.38]*	[0.13]*	Monoterpenic alcohol
2-Nonanone	0.06*	0.02	Aliphatic ketone
α-Pinene oxide	[0.06]*		Monoterpenic ether
Rosefuran	0.02	0.02	Monoterpenic ether
Linalool	0.33	0.33	Monoterpenic alcohol
2-Nonanol	0.02	0.03	Aliphatic alcohol
1-Methyl-4-(1-methylpropyl)benzene	0.02	0.02	Terpene derivative
endo-Fenchol	0.03	0.06	Monoterpenic alcohol
Bornyl methyl ether	0.08*	[0.05]*	Monoterpenic ether
trans-Pinene hydrate	[0.08]*	0.02	Monoterpenic alcohol
(*E*)-4,8-Dimethylnona-1,3,7-triene	[0.08]*		Terpene derivative
cis-para-Menth-2-en-1-ol	[0.08]*	0.18*	Monoterpenic alcohol
cis-Limonene oxide	0.03*	[0.02]*	Monoterpenic ether

4-Hydroxy-4-methylcyclohex-2-enone	[0.03]*	0.17*	Aliphatic alcohol
Camphor	0.06	0.37*	Monoterpenic ketone
trans-para-Menth-2-en-1-ol	0.08	0.05	Monoterpenic alcohol
Camphene hydrate	0.01*	0.01	Monoterpenic alcohol
Epoxyterpinolene	[0.01]*	tr	Monoterpenic ether
Citronellal	0.06	0.11*	Monoterpenic aldehyde
Borneol	0.56	1.17*	Monoterpenic alcohol
Isoneral	0.14*	0.01	Monoterpenic aldehyde
Unknown	[0.14]*		Oxygenated monoterpene
Terpinen-4-ol	0.08	0.09	Monoterpenic alcohol
Cryptone	0.01	0.22*	Normonoterpenic ketone
para-Cymen-8-ol	0.07	0.07	Monoterpenic alcohol
α-Terpineol	0.44	[1.17]*	Monoterpenic alcohol
Myrtenal	0.01	0.01	Monoterpenic aldehyde
Decanal	0.02*	0.01	Aliphatic aldehyde
trans-Piperitol	[0.02]*	0.22	Monoterpenic alcohol
Nerol	0.17	0.14	Monoterpenic alcohol
Citronellol	0.01	13.97	Monoterpenic alcohol
Neral	1.45	2.00*	Monoterpenic aldehyde
Unknown	0.05	0.05*	Oxygenated monoterpene
Geraniol	0.16	0.16	Monoterpenic alcohol
(2*E*)-Decenal	0.05	0.08	Aliphatic aldehyde
Geranial	2.98	3.92*	Monoterpenic aldehyde
Citronellyl formate	0.02	0.03	Monoterpenic ester
Bornyl acetate	0.14	0.14	Monoterpenic ester
2-Undecanone	0.06	0.07	Aliphatic ketone
Geranyl formate	0.01	3.29*	Monoterpenic ester
δ-Elemene	0.05	[0.11]*	Sesquiterpene
Citronellyl acetate	0.05	[2.00]*	Monoterpenic ester
Unknown	0.16*		Unknown
8-Hydroxy-iso-menthol	[0.16]*	0.15	Monoterpenic alcohol
Cyclosativene II	0.05	[0.13]*	Sesquiterpene
Neryl acetate	0.01	[3.92]*	Monoterpenic ester
α-Copaene	0.33	[0.37]*	Sesquiterpene
Unknown	0.02		Unknown
Geranyl acetate	0.19*	[7.58]	Monoterpenic ester
β-Cubebene	[0.19]*	0.02	Sesquiterpene
β-Elemene	0.28	0.51*	Sesquiterpene
γ-4-Dimethylbenzenebutyral	0.02		Simple phenolic
Sesquithujene	0.35*	[0.18]*	Sesquiterpene
Dodecanal	[0.35]*	0.80*	Aliphatic aldehyde
β-Caryophyllene	0.12	[0.51]*	Sesquiterpene
β-Copaene	0.01	0.01	Sesquiterpene
Unknown	0.04		Unknown
(*Z*)-β-Farnesene?	0.04	[0.22]*	Sesquiterpene
trans-α-Bergamotene	0.11	[0.51]*	Sesquiterpene
Sesquisabinene A	0.02	[0.22]*	Sesquiterpene
Unknown	0.04		Sesquiterpene
Unknown	0.07	0.05	Sesquiterpene
α-Humulene	0.17	0.33	Sesquiterpene
Sesquisabinene B	0.06	0.07	Sesquiterpene
allo-Aromadendrene	0.67	0.37	Sesquiterpene

(*E*)-β-Farnesene	0.43	0.49	Sesquiterpene
Selina-4,11-diene	0.15	0.11	Sesquiterpene
γ-Muurolene	0.44	0.39	Sesquiterpene
Germacrene D	1.34	0.91	Sesquiterpene
γ-Curcumene	0.18	0.19	Sesquiterpene
ar-Curcumene	3.59*	[13.97]*	Sesquiterpene
β-Selinene	[3.59]*	[3.29]*	Sesquiterpene
Unknown	0.59	[0.80]*	Sesquiterpene
Bicyclosesquiphellandrene?	2.91	[3.29]*	Sesquiterpene
α-Muurolene	28.43*	[0.80]*	Sesquiterpene
α-Zingiberene	[28.43]*	[32.57]	Sesquiterpene
β-Bisabolene	[13.26]*	32.57	Sesquiterpene
γ-Cadinene	[13.26]*	0.31*	Sesquiterpene
Cubebol	[13.26]*	0.02	Sesquiterpenic alcohol
(3*E*,6*E*)-α-Farnesene	[13.26]*	7.58	Sesquiterpene
7-epi-α-Selinene	13.26	[0.31]*	Sesquiterpene
δ-Cadinene	0.60*	0.66*	Sesquiterpene
trans-Calamenene	[0.60]*	[0.05]*	Sesquiterpene
β-Sesquiphellandrene	10.81	[13.97]*	Sesquiterpene
(*E*)-γ-Bisabolene	0.53*	[0.66]*	Sesquiterpene
Unknown	[0.53]*		Oxygenated sesquiterpene
Unknown	[0.53]*	0.11*	Oxygenated sesquiterpene
Unknown	0.15		Oxygenated sesquiterpene
α-Elemol	0.09	[0.17]*	Sesquiterpenic alcohol
Germacrene B	0.43*	0.43	Sesquiterpene
cis-Sesquisabinene hydrate	[0.43]*	[0.11]*	Sesquiterpenic alcohol
(*E*)-Nerolidol	0.79	0.87	Sesquiterpenic alcohol
ar-Turmerol	0.15	0.12	Sesquiterpenic alcohol
10-epi-γ-Eudesmol	0.40	0.22	Sesquiterpenic alcohol
Unknown	1.73	1.29	Oxygenated sesquiterpene
γ-Eudesmol	0.64	0.64	Sesquiterpenic alcohol
trans-Zingiberenol	0.04	0.08	Sesquiterpenic alcohol
τ-Muurolol	0.40*	0.18	Sesquiterpenic alcohol
τ-Cadinol	[0.40]*	0.09	Sesquiterpenic alcohol
β-Eudesmol	0.60	0.60	Sesquiterpenic alcohol
α-Cadinol	0.48	0.43	Sesquiterpenic alcohol
α-Eudesmol	0.44	0.26	Sesquiterpenic alcohol
β-Bisabolol	0.30	0.41	Sesquiterpenic alcohol
Zingerone methyl ether	0.04	0.02	Simple phenolic
4-(1,5-Dimethylhex-4-enyl)cyclohex-2-enone	0.16*	0.07	Norsesquiterpenic ketone
α-Bisabolol	[0.16]*	0.12	Sesquiterpenic alcohol
Unknown	0.12	0.16	Oxygenated sesquiterpene
Unknown	0.32	0.40	Oxygenated sesquiterpene
ar-Curcumen-15-al	0.18	0.19	Sesquiterpenic aldehyde
(2*E*,6*Z*)-Farnesal	0.19		Sesquiterpenic aldehyde
Unknown	0.09	0.10	Oxygenated sesquiterpene
Oplopanone	0.03	0.25	Sesquiterpenic alcohol
(2*E*,6*E*)-Farnesal	0.22	0.20	Sesquiterpenic aldehyde
Unknown	0.05		Oxygenated sesquiterpene
Unknown	0.07		Oxygenated sesquiterpene
Unknown	0.02		Oxygenated sesquiterpene

Unknown	0.06	0.05	Oxygenated sesquiterpene
Unknown	0.35	0.38	Oxygenated sesquiterpene
Unknown	0.15		Oxygenated sesquiterpene
Unknown	0.11	0.16*	Oxygenated sesquiterpene
Unknown	0.05	[0.16]*	Oxygenated sesquiterpene
Unknown	0.06	0.03	Oxygenated sesquiterpene
Total identified	**92.17%**	**91.85%**	

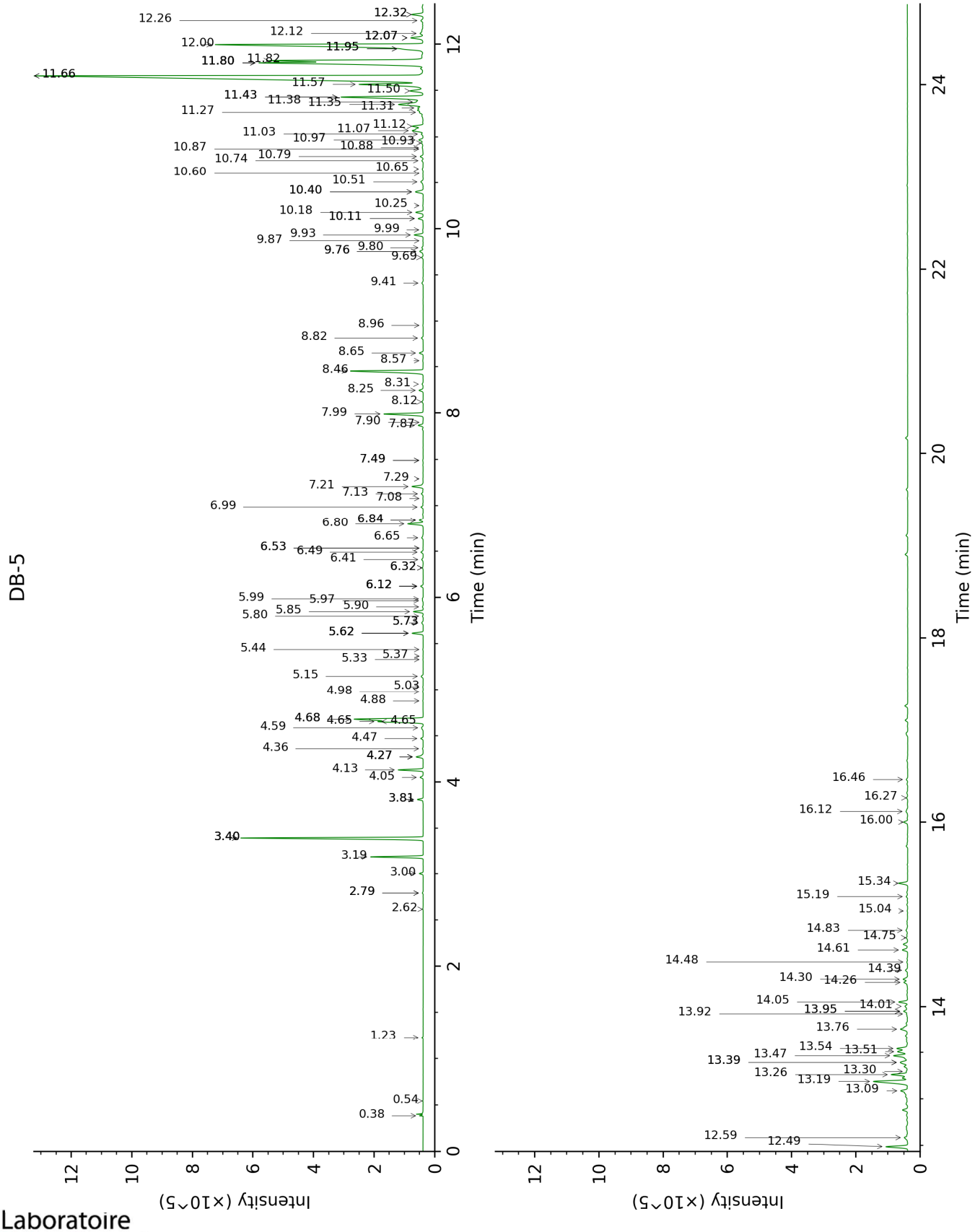
*: Two or more compounds are coeluting on this column
[xx]: Duplicate percentage due to coelutions, not taken account in the identified total
tr: The compound has been detected below 0.005% of total signal.

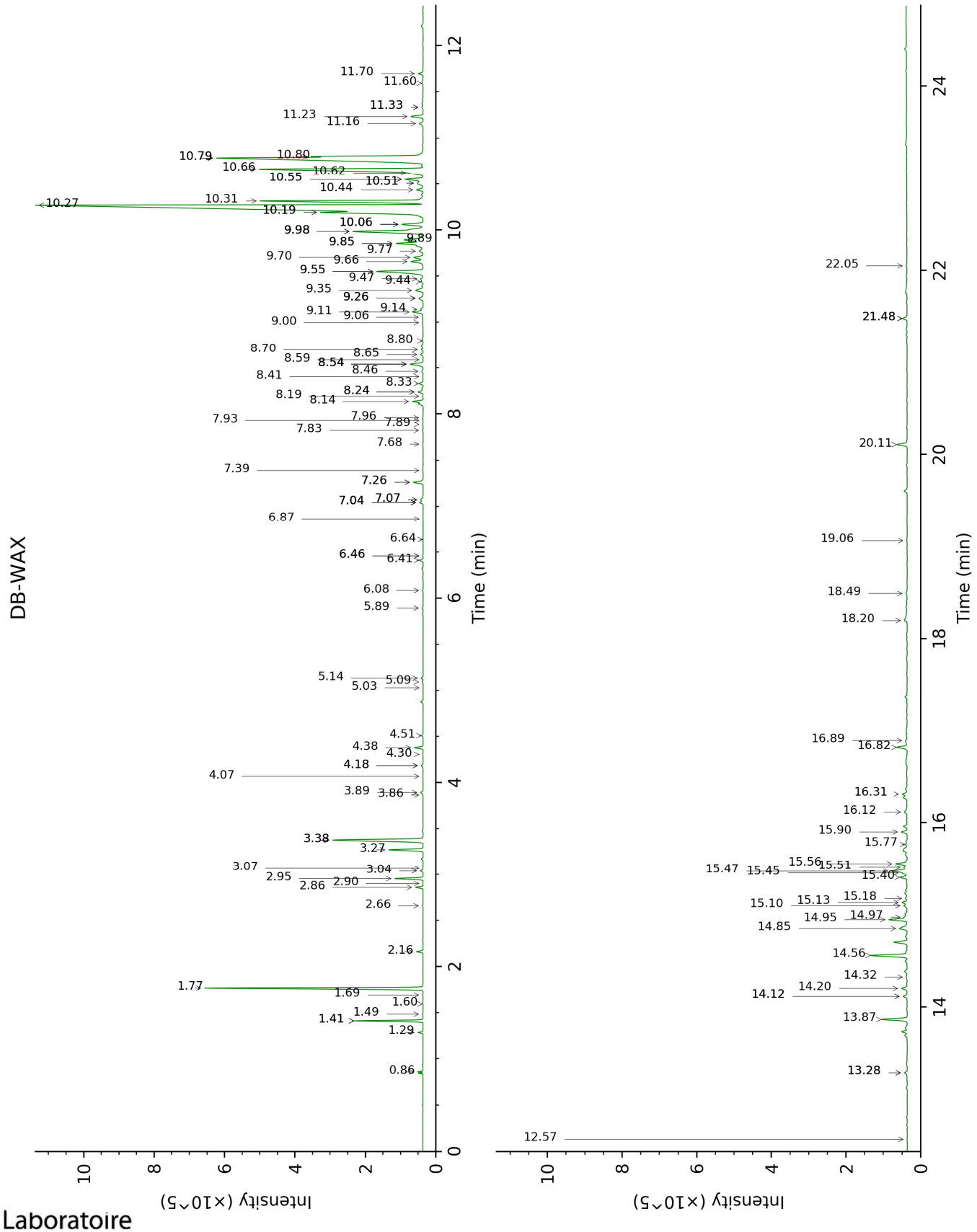
Note: no correction factor was applied

628 Boulevard du Saguenay, Saguenay (Qc) G7J 1H4 | www.phytochemia.com

This page was intentionally left blank. The following pages present the complete data of the analysis.

628 Boulevard du Saguenay, Saguenay (Qc) G7J 1H4 | www.phytochemia.com


DB-5
Time (min)
Intensity (×10^5)
12.26
12.32
12.12
12.07
12.00
11.95
11.80
11.82
11.66
11.57
11.50
11.43
11.38
11.35
11.31
11.27
11.03
11.07
11.12
10.97
10.93
10.87
10.88
10.74
10.79
10.65
10.60
10.51
10.40
10.25
10.18
10.11
9.99
9.93
9.87
9.80
9.76
9.69
9.41
8.96
8.82
8.65
8.57
8.46
8.31
8.25
8.12
7.99
7.90
7.87
7.49
7.29
7.21
7.13
7.08
6.99
6.84
6.80
6.65
6.53
6.49
6.41
6.32
6.12
5.99
5.97
5.90
5.85
5.80
5.73
5.62
5.44
5.37
5.33
5.15
5.03
4.98
4.88
4.68
4.65
4.65
4.59
4.47
4.36
4.27
4.13
4.05
3.81
3.40
3.19
3.00
2.79
2.62
1.23
0.54
0.38
16.46
16.27
16.12
16.00
15.34
15.19
15.04
14.83
14.75
14.61
14.48
14.39
14.30
14.26
14.05
13.92
13.95
14.01
13.76
13.54
13.51
13.47
13.39
13.30
13.26
13.19
13.09
12.59
12.49


DB-WAX
Time (min)
Intensity (×10^5)
11.70
11.60
11.33
11.23
11.16
10.79
10.80
10.66
10.62
10.55
10.51
10.44
10.31
10.27
10.19
10.06
9.98
9.89
9.85
9.77
9.70
9.66
9.55
9.47
9.44
9.35
9.26
9.14
9.11
9.06
9.00
8.80
8.70
8.65
8.59
8.54
8.46
8.41
8.33
8.24
8.19
8.14
7.96
7.93
7.89
7.83
7.68
7.39
7.26
7.07
7.04
6.87
6.64
6.46
6.41
6.08
5.89
5.14
5.09
5.03
4.51
4.38
4.30
4.18
4.07
3.89
3.86
3.38
3.27
3.07
3.04
2.95
2.90
2.86
2.66
2.16
1.77
1.69
1.60
1.49
1.41
1.29
0.86
22.05
21.48
20.11
19.06
18.49
18.20
16.89
16.82
16.31
16.12
15.90
15.77
15.56
15.51
15.47
15.45
15.40
15.18
15.13
15.10
14.97
14.95
14.85
14.56
14.32
14.20
14.12
13.87
13.28
12.57

FULL ANALYSIS DATA

Identification	Column DB-5			Column DB-WAX		
	R.T	R.I	%	R.T	R.I	%
Ethanol	0.38	513	0.05	0.86	913	0.07
2-Methyl-3-buten-2-ol	0.54	604	0.01	1.60	1014	0.01
Toluene	1.23	756	0.02	1.49	1004	0.01
2-Heptanone	2.62	888	0.01	3.07	1144	0.01
2-Heptanol	2.79*	903	0.02	5.03	1297	tr
Nonane	2.79*	903	[0.02]			
Tricyclene	3.00	917	0.11	1.29	975	0.11
α-Pinene	3.19	929	1.52	1.41*	994	1.49
Camphene	3.40*	942	5.82	1.77	1030	5.70
α-Fenchene	3.40*	942	[5.82]	1.69	1023	0.01
β-Citronellene	3.40*	942	[5.82]	1.41*	994	[1.49]
β-Pinene	3.81*	970	0.17	2.16	1067	0.17
Sabinene	3.81*	970	[0.17]			
6-Methyl-5-hepten-2-one	4.05	986	0.11	5.14	1305	0.06
Myrcene	4.13	991	0.76	2.95	1135	0.74
α-Phellandrene	4.27*	1000	0.27	2.86	1128	0.20
Unknown [m/z 79, 108 (79), 52 (43), 80 (42), 77 (27)]	4.27*	1000	[0.27]	7.68	1482	0.02
Octanal	4.27*	1000	[0.27]	4.51	1256	0.04
Pseudolimonene	4.27*	1000	[0.27]	2.90	1131	0.01
Δ3-Carene	4.36	1006	0.02	2.66	1112	0.02
α-Terpinene	4.47	1013	0.07	3.04	1142	0.07
para-Cymene	4.59	1020	0.08	4.18*	1231	0.05
Limonene	4.65*	1024	1.60	3.27	1160	0.98
β-Phellandrene	4.65*	1024	[1.60]	3.38*	1168	3.49
Unknown [m/z 59, 43 (12), 109 (11), 41 (10), 127 (8)...]	4.68*	1026	2.92	6.46*	1391	0.02
1,8-Cineole	4.68*	1026	[2.92]	3.38*	1168	[3.49]
(*Z*)-β-Ocimene	4.88	1038	0.01	3.86	1207	0.01
2-Heptyl acetate	4.98	1045	0.01	4.30	1241	0.01
(*E*)-β-Ocimene	5.03	1048	0.01	4.07	1223	0.01
γ-Terpinene	5.15	1056	0.08	3.89	1209	0.08
cis-Sabinene hydrate	5.33	1067	0.01	7.04*	1434	0.13
cis-Linalool oxide (fur.)	5.37	1069	tr	6.64	1404	tr
Octanol	5.44	1074	0.01	8.19	1522	0.02
para-Cymenene	5.62*	1085	0.38	6.41	1387	0.12
Terpinolene	5.62*	1085	[0.38]	4.38	1246	0.25
trans-Linalool oxide (fur.)	5.62*	1085	[0.38]	7.04*	1434	[0.13]
2-Nonanone	5.73*	1092	0.06	5.90	1350	0.02
α-Pinene oxide	5.73*	1092	[0.06]			
Rosefuran	5.80	1097	0.02	6.08	1364	0.02
Linalool	5.85	1100	0.33	8.14	1517	0.33
2-Nonanol	5.90	1103	0.02	7.82	1493	0.03
1-Methyl-4-(1-methylpropyl)benzene	5.97	1107	0.02	5.10	1302	0.02
endo-Fenchol	5.99	1108	0.03	8.46	1543	0.06
Bornyl methyl ether	6.12*	1117	0.08	4.18*	1231	[0.05]
trans-Pinene hydrate	6.12*	1117	[0.08]	7.96	1503	0.02

(*E*)-4,8-Dimethylnona-1,3,7-triene	6.12*	1117	[0.08]			
cis-para-Menth-2-en-1-ol	6.12*	1117	[0.08]	8.24*	1525	0.18
cis-Limonene oxide	6.32*	1130	0.03	6.46*	1391	[0.02]
4-Hydroxy-4-methylcyclohex-2-enone	6.32*	1130	[0.03]	14.12*	2031	0.17
Camphor	6.41	1136	0.06	7.26*	1451	0.37
trans-para-Menth-2-en-1-ol	6.49	1141	0.08	9.06	1589	0.05
Camphene hydrate	6.53*	1144	0.01	8.59	1552	0.01
Epoxyterpinolene	6.53*	1144	[0.01]	6.86	1421	tr
Citronellal	6.65	1151	0.06	7.07*	1437	0.11
Borneol	6.80	1161	0.56	9.85*†	1654	1.17
Isoneral	6.84*	1164	0.14	7.93	1501	0.01
Unknown [m/z 109, 79 (18), 81 (15), 91 (12), 77 (10)... 152 (3)]	6.84*	1164	[0.14]			
Terpinen-4-ol	6.98	1173	0.08	8.65	1557	0.09
Cryptone	7.08	1179	0.01	9.26*	1605	0.22
para-Cymen-8-ol	7.13	1182	0.07	11.60	1800	0.07
α-Terpineol	7.21	1188	0.44	9.85*†	1654	[1.17]
Myrtenal	7.29	1193	0.01	8.80	1569	0.01
Decanal	7.49*	1206	0.02	7.39	1460	0.01
trans-Piperitol	7.49*	1206	[0.02]	10.44	1701	0.22
Nerol	7.87	1232	0.17	11.16	1763	0.14
Citronellol	7.90	1234	0.01	10.80†	1732	13.97
Neral	7.99	1240	1.45	9.55*	1629	2.00
Unknown [m/z 109, 119 (84), 91 (81), 134 (55)... 137 (27)...]	8.12	1249	0.05	11.33*	1778	0.05
Geraniol	8.25	1258	0.16	11.70	1809	0.16
(2*E*)-Decenal	8.31	1262	0.05	9.14	1596	0.08
Geranial	8.46	1272	2.98	10.19*	1681	3.92
Citronellyl formate	8.57	1280	0.02	9.00	1584	0.03
Bornyl acetate	8.65	1286	0.14	8.33	1532	0.14
2-Undecanone	8.82	1297	0.06	8.70	1561	0.07
Geranyl formate	8.96	1307	0.01	9.98*	1664	3.29
δ-Elemene	9.41	1335	0.05	7.07*	1437	[0.11]
Citronellyl acetate	9.69	1355	0.05	9.55*	1629	[2.00]
Unknown [m/z 95, 110 (87), 43 (58), 139 (52)...]	9.76*	1360	0.16			
8-Hydroxy-iso-menthol	9.76*	1360	[0.16]	15.10	2127	0.15
Cyclosativene II	9.80	1362	0.05	7.04*	1434	[0.13]
Neryl acetate	9.87	1368	0.01	10.19*	1681	[3.92]
α-Copaene	9.93	1372	0.33	7.26*	1451	[0.37]
Unknown [m/z 139, 69 (63), 83 (53), 43 (49), 41 (39)...]	9.99	1376	0.02			
Geranyl acetate	10.11*	1385	0.19	10.62†	1717	[7.58]
β-Cubebene	10.11*	1385	[0.19]	7.89	1498	0.02
β-Elemene	10.18	1390	0.28	8.54*	1549	0.51
γ-4-Dimethylbenzenebutyral	10.25	1395	0.02			
Sesquithujene	10.40*	1405	0.35	8.24*	1525	[0.18]

Dodecanal	10.40*	1405	[0.35]	10.06*	1670	0.80
β-Caryophyllene	10.51	1414	0.12	8.54*	1549	[0.51]
β-Copaene	10.60	1420	0.01	8.41	1538	0.01
Unknown [m/z 43, 83 (81), 126 (64), 41 (53), 55 (43)...]	10.65	1424	0.04			
(*Z*)-β-Farnesene?	10.74	1431	0.04	9.26*	1605	[0.22]
trans-α-Bergamotene	10.79	1434	0.11	8.54*	1549	[0.51]
Sesquisabinene A	10.87	1440	0.02	9.26*	1605	[0.22]
Unknown [m/z 139, 69 (60), 41 (51), 43 (47), 119 (41)... 204 (1)]	10.88	1442	0.04			
Unknown [m/z 139, 69 (43), 91 (42), 41 (36), 81 (36), 43 (36)... 204 (5)]	10.93	1445	0.07	14.32	2052	0.05
α-Humulene	10.97	1448	0.17	9.35	1612	0.33
Sesquisabinene B	11.03	1453	0.06	9.44	1620	0.07
allo-Aromadendrene	11.07	1456	0.67	9.11	1593	0.37
(*E*)-β-Farnesene	11.12	1459	0.43	9.66	1638	0.49
Selina-4,11-diene	11.27	1470	0.15	9.47	1622	0.11
γ-Muurolene	11.31	1474	0.44	9.70	1641	0.39
Germacrene D	11.35	1477	1.34	9.89	1657	0.91
γ-Curcumene	11.38	1479	0.18	9.77	1647	0.19
ar-Curcumene	11.43*	1483	3.59	10.78*†	1731	[13.97]
β-Selinene	11.43*	1483	[3.59]	9.98*	1664	[3.29]
Unknown [m/z 161, 91 (100), 105 (93), 79 (89), 93 (89), 107 (79)... 204 (34)]	11.50	1488	0.59	10.06*	1670	[0.80]
Bicyclosesquiphellandrene?	11.57	1493	2.91	9.98*	1664	[3.29]
α-Muurolene	11.66*	1500	28.43	10.06*	1670	[0.80]
α-Zingiberene	11.66*	1500	[28.43]	10.27†	1687	[32.57]
β-Bisabolene	11.80*†	1510	[13.26]	10.31†	1691	32.57
γ-Cadinene	11.80*†	1510	[13.26]	10.51*	1707	0.31
Cubebol	11.80*†	1510	[13.26]	12.57	1887	0.02
(3*E*,6*E*)-α-Farnesene	11.80*†	1510	[13.26]	10.66†	1721	7.58
7-epi-α-Selinene	11.82†	1512	13.26	10.51*	1707	[0.31]
δ-Cadinene	11.95*	1522	0.60	10.55*	1711	0.66
trans-Calamenene	11.95*	1522	[0.60]	11.33*	1778	[0.05]
β-Sesquiphellandrene	12.00	1526	10.81	10.78*†	1731	[13.97]
(*E*)-γ-Bisabolene	12.07*	1532	0.53	10.55*	1711	[0.66]
Unknown [m/z 69, 41 (80), 82 (63), 43 (57), 98 (54)... 220 (t)]	12.07*	1532	[0.53]			
Unknown [m/z 177, 159 (67), 41 (43), 91 (43), 43 (41)... 220 (t)]	12.07*	1532	[0.53]	13.28*	1953	0.11
Unknown [m/z 43, 177 (99), 93 (75), 41 (73), 91 (65), 107 (60)... 220 (4)]	12.12	1536	0.15			
α-Elemol	12.26	1547	0.09	14.12*	2031	[0.17]
Germacrene B	12.32*	1552	0.43	11.24	1769	0.43
cis-Sesquisabinene hydrate	12.32*	1552	[0.43]	13.28*	1953	[0.11]
(*E*)-Nerolidol	12.49	1565	0.79	13.87	2007	0.87

ar-Turmerol	12.59	1573	0.15	15.45	2163	0.12
10-epi-γ-Eudesmol	13.09	1612	0.40	14.20	2040	0.22
Unknown [m/z 161, 59 (59), 81 (50), 204 (49), 93 (36), 189 (34)... 220 (t)]	13.19	1621	1.73	14.56	2074	1.29
γ-Eudesmol	13.26	1627	0.64	14.95	2112	0.64
trans-Zingiberenol	13.30	1630	0.04	15.18	2135	0.08
τ-Muurolol	13.39*	1638	0.40	15.13	2131	0.18
τ-Cadinol	13.39*	1638	[0.40]	14.97	2115	0.09
β-Eudesmol	13.47	1644	0.60	15.47	2165	0.60
α-Cadinol	13.51	1647	0.48	15.56	2173	0.43
α-Eudesmol	13.54	1650	0.44	15.40	2158	0.26
β-Bisabolol	13.76	1668	0.30	14.85	2102	0.41
Zingerone methyl ether	13.92	1682	0.04	19.06	2554	0.02
4-(1,5-Dimethylhex-4-enyl)cyclohex-2-enone	13.95*	1684	0.16	15.77	2195	0.07
α-Bisabolol	13.95*	1684	[0.16]	15.51	2169	0.12
Unknown [m/z 137, 119 (70), 84 (69), 41 (68), 69 (53), 55 (45), 109 (38)... 222 (2)]	14.00	1688	0.12	16.12	2231	0.16
Unknown [m/z 69, 41 (59), 118 (33), 43 (32), 55 (31)... 234? (t)]	14.05	1692	0.32	16.82	2304	0.40
ar-Curcumen-15-al	14.26	1710	0.18	16.31	2251	0.19
(2*E*,6*Z*)-Farnesal	14.30	1713	0.19			
Unknown [m/z 119, 91 (31), 105 (29), 41 (25), 133 (23), 158 (21)...]	14.40	1722	0.09	16.89	2312	0.10
Oplopanone	14.48	1729	0.03	18.20	2455	0.25
(2*E*,6*E*)-Farnesal	14.61	1740	0.22	15.90	2208	0.20
Unknown [m/z 82, 43 (85), 91 (67), 93 (66), 41 (66), 69 (59), 106 (47)... 218 (5)...]	14.75	1752	0.05			
Unknown [m/z 43, 82 (100), 41 (86), 69 (76), 93 (72), 91 (72)... 218 (4)...]	14.83	1759	0.07			
Unknown [m/z 151, 41 (78), 95 (71), 109 (59), 55 (56), 69 (55)... 234 (15)]	15.04	1777	0.02			
Unknown [m/z 69, 41 (96), 43 (90), 109 (51), 55 (42), 81 (33)...]	15.19	1791	0.06	18.49	2488	0.05
Unknown [m/z 69, 43 (95), 41 (84), 109 (78), 95 (54), 93 (49)... 177 (36), 220 (2)...]	15.34	1803	0.35	20.11	2678	0.38
Unknown [m/z 43, 109 (77), 69 (65), 41 (60), 55 (51), 95 (44), 135 (43)... 207 (19)...]	16.00	1864	0.15			
Unknown [m/z 109, 69 (58), 43 (56), 41 (42), 135 (37), 55 (27)... 220 (5)]	16.12	1874	0.11	21.48*	2849	0.16
Unknown [m/z 125, 41 (88),	16.26	1888	0.05	21.48*	2849	[0.16]

109 (76), 69 (76), 151 (68), 55 (45), 95 (36)... 236 (21)]						
Unknown [m/z 125, 41 (86), 151 (78), 109 (67), 69 (63)... 236 (22)]	16.46	1906	0.06	22.05	2922	0.03
Total identified		**92.17%**			**91.85%**	
Total reported		**96.29%**			**94.35%**	

*: 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