

Date : 2024-09-25

CERTIFICATE OF ANALYSIS - GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 24I11-PTH01

Customer Identification : Ginger Root CO2 - India - G40115R

Type : CO2 Extract

Source : *Zingiber officinale*

Customer : Plant Therapy

Checked and approved by:

Alexis St-Gelais, Ph. D., Chimiste 2013-174

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GAS CHROMATOGRAPHIC ANALYSIS

Method : PC-MAT-004 - Terpenes and volatiles profiling by response factor

Results : See analysis summary (next page)

Analyst : Alexis St-Gelais, Ph. D., Chimiste 2013-174

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PHYSICOCHEMICAL DATA

CONCLUSION

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

ANALYSIS SUMMARY

Identification	mg/g	% m/m	Class
Hexanal	5.20	0.52	Aliphatic aldehyde
Biomarker	0.82	0.08	Aliphatic aldehyde
Unknown	0.52	0.05	Unknown
Unknown	0.22	0.02	Unknown
Hexanol	0.05	0.01	Aliphatic alcohol
2-Heptanone	0.17	0.02	Aliphatic ketone
2-Heptanol	0.33	0.03	Aliphatic alcohol
Tricyclene	0.28	0.03	Monoterpene
α -Thujene	0.03	0.0	Monoterpene
α -Pinene	4.26	0.43	Monoterpene
Camphene	12.70	1.27	Monoterpene
α -Fenchene	0.12	0.01	Monoterpene
Thuja-2,4(10)-diene	0.03	0.0	Monoterpene
Unknown	0.04	0.0	Monoterpene
Sabinene	0.14	0.01	Monoterpene
β -Pinene	0.57	0.06	Monoterpene
6-Methyl-5-hepten-2-one	1.22	0.12	Aliphatic ketone
Myrcene	1.71	0.17	Monoterpene
6-Methyl-5-hepten-2-ol	0.04	0.0	Aliphatic alcohol
Unknown	0.14	0.01	Unknown
α -Phellandrene	0.53	0.05	Monoterpene
Octanal	1.41	0.14	Aliphatic aldehyde
Δ^3 -Carene	0.08	0.01	Monoterpene
α -Terpinene	0.03	0.0	Monoterpene
<i>para</i> -Cymene	0.22	0.02	Monoterpene
β -Phellandrene	9.45	0.94	Monoterpene
Limonene	2.79	0.28	Monoterpene
1,8-Cineole	7.42	0.74	Monoterpenic ether
2-Heptyl acetate	0.05	0.01	Aliphatic ester
2,6-Dimethyl-5-heptenal (melonal)	0.04	0.0	Aliphatic aldehyde
γ -Terpinene	0.10	0.01	Monoterpene
<i>cis</i> -Sabinene hydrate	0.01	0.0	Monoterpenic alcohol
<i>cis</i> -Linalool oxide (fur.)	0.05	0.01	Monoterpenic alcohol
<i>trans</i> -Linalool oxide (fur.)	0.07	0.01	Monoterpenic alcohol
Terpinolene	0.53	0.05	Monoterpene
Unknown	0.79	0.08	Oxygenated monoterpene
Rosefuran	0.58	0.06	Monoterpenic ether
Linalool	1.68	0.17	Monoterpenic alcohol
2-Nonanol	0.39	0.04	Aliphatic alcohol
endo-Fenchol	0.12	0.01	Monoterpenic alcohol
<i>cis-para</i> -Menth-2-en-1-ol	0.15	0.01	Monoterpenic alcohol

Bornyl methyl ether	0.04	0.0	Monoterpenic ether
(E)-4,8-Dimethylnona-1,3,7-triene	0.25	0.03	Terpene derivative
Camphor	0.47	0.05	Monoterpenic ketone
Camphene hydrate	0.39	0.04	Monoterpenic alcohol
exo-Isocitral	0.14	0.01	Monoterpenic aldehyde
Citronellal	0.27	0.03	Monoterpenic aldehyde
Borneol	4.19	0.42	Monoterpenic alcohol
Isoneral	0.29	0.03	Monoterpenic aldehyde
Rosefuran oxide	0.51	0.05	Monoterpenic ether
Terpinen-4-ol	0.84	0.08	Monoterpenic alcohol
Isogeranial	0.11	0.01	Monoterpenic aldehyde
para-Cymen-8-ol	0.22	0.02	Monoterpenic alcohol
α-Terpineol	2.72	0.27	Monoterpenic alcohol
Myrtenol	0.31	0.03	Monoterpenic alcohol
Decanal	3.40	0.34	Aliphatic aldehyde
trans-Carveol	0.11	0.01	Monoterpenic alcohol
Bornyl formate	0.15	0.01	Monoterpenic ester
Nerol	0.09	0.01	Monoterpenic alcohol
Citronellol	1.50	0.15	Monoterpenic alcohol
Neral	1.43	0.14	Monoterpenic aldehyde
Unknown	0.33	0.03	Oxygenated monoterpene
Geraniol	1.26	0.13	Monoterpenic alcohol
Geranial	2.30	0.23	Monoterpenic aldehyde
Citronellyl formate	0.23	0.02	Monoterpenic ester
Bornyl acetate	0.46	0.05	Monoterpenic ester
2-Undecanone	1.31	0.13	Aliphatic ketone
Geranyl formate	0.27	0.03	Monoterpenic ester
Carvacrol	0.21	0.02	Monoterpenic alcohol
δ-Elemene	0.38	0.04	Sesquiterpene
α-Cubebene	0.16	0.02	Sesquiterpene
Citronellyl acetate	0.32	0.03	Monoterpenic ester
Cyclosativene I	0.88	0.09	Sesquiterpene
Unknown	0.34	0.03	Unknown
Cyclosativene II	0.40	0.04	Sesquiterpene
α-Copaene	2.37	0.24	Sesquiterpene
Unknown	0.39	0.04	Unknown
cis-β-Elemene	0.14	0.01	Sesquiterpene
Geranyl acetate	1.06	0.11	Monoterpenic ester
β-Cubebene	0.16	0.02	Sesquiterpene
β-Elemene	3.72	0.37	Sesquiterpene
Sesquithujene	1.05	0.11	Sesquiterpene
β-Caryophyllene	0.46	0.05	Sesquiterpene
β-Copaene	0.28	0.03	Sesquiterpene
γ-Elemene	1.03	0.1	Sesquiterpene
trans-α-Bergamotene	1.04	0.1	Sesquiterpene

Unknown	0.12	0.01	Unknown
Sesquisabinene A	0.08	0.01	Sesquiterpene
Unknown	0.32	0.03	Sesquiterpene
Unknown	0.94	0.09	Sesquiterpene
α -Humulene	0.26	0.03	Sesquiterpene
allo-Aromadendrene	2.02	0.2	Sesquiterpene
Sesquisabinene B	1.28	0.13	Sesquiterpene
(<i>E</i>)- β -Farnesene	1.62	0.16	Sesquiterpene
Selina-4,11-diene	1.11	0.11	Sesquiterpene
γ -Murolene	1.96	0.2	Sesquiterpene
Germacrene D	6.55	0.66	Sesquiterpene
β -Selinene	1.12	0.11	Sesquiterpene
ar-Curcumene	33.85	3.39	Sesquiterpene
Unknown	8.53	0.85	Sesquiterpene
Bicyclosesquiphellandrene?	15.48	1.55	Sesquiterpene
epi-Cubebol	0.48	0.05	Sesquiterpenic alcohol
α -Zingiberene	122.89	12.29	Sesquiterpene
β -Bisabolene	30.90	3.09	Sesquiterpene
γ -Cadinene	2.14	0.21	Sesquiterpene
(3 <i>E</i> ,6 <i>E</i>)- α -Farnesene	29.89	2.99	Sesquiterpene
7-epi- α -Selinene	0.45	0.04	Sesquiterpene
<i>trans</i> -Calamenene	0.29	0.03	Sesquiterpene
δ -Cadinene	1.14	0.11	Sesquiterpene
β -Sesquiphellandrene	51.56	5.16	Sesquiterpene
(<i>E</i>)- γ -Bisabolene	1.45	0.14	Sesquiterpene
Unknown	1.25	0.12	Oxygenated sesquiterpene
α -Calacorene	0.49	0.05	Sesquiterpene
α -Elemol	2.15	0.21	Sesquiterpenic alcohol
Germacrene B	2.19	0.22	Sesquiterpene
Unknown	0.25	0.03	Oxygenated sesquiterpene
<i>cis</i> -Sesquisabinene hydrate	0.95	0.1	Sesquiterpenic alcohol
(<i>E</i>)-Nerolidol	2.81	0.28	Sesquiterpenic alcohol
ar-Turmerol	0.99	0.1	Sesquiterpenic alcohol
<i>trans</i> -Sesquisabinene hydrate	2.27	0.23	Sesquiterpenic alcohol
Unknown	0.53	0.05	Oxygenated sesquiterpene
Unknown	0.18	0.02	Oxygenated sesquiterpene
<i>cis</i> -Zingiberenol	3.76	0.38	Sesquiterpenic alcohol
Unknown	1.11	0.11	Oxygenated sesquiterpene
γ -Eudesmol	0.41	0.04	Sesquiterpenic alcohol
<i>trans</i> -Zingiberenol	1.79	0.18	Sesquiterpenic alcohol
Zingerone	14.20	1.42	Phenylbutanoid
β -Eudesmol	1.60	0.16	Sesquiterpenic alcohol
α -Eudesmol	2.80	0.28	Sesquiterpenic alcohol
Selin-11-en-4 α -ol	1.30	0.13	Sesquiterpenic alcohol
(3 <i>E</i> ,5 <i>E</i>)-7-Hydroxyfarnesene	0.41	0.04	Sesquiterpenic alcohol

β-Bisabolol	1.17	0.12	Sesquiterpenic alcohol
Zingerone methyl ether	0.50	0.05	Simple phenolic
α-Bisabolol	1.86	0.19	Sesquiterpenic alcohol
Unknown	3.96	0.4	Oxygenated sesquiterpene
Unknown	4.08	0.41	Oxygenated sesquiterpene
ar-Curcumen-15-al	0.67	0.07	Sesquiterpenic aldehyde
Unknown	1.18	0.12	Oxygenated sesquiterpene
Oplopanone	0.27	0.03	Sesquiterpenic alcohol
(2E,6E)-Farnesal	0.29	0.03	Sesquiterpenic aldehyde
Unknown	1.03	0.1	Oxygenated sesquiterpene
Unknown	0.24	0.02	Oxygenated sesquiterpene
Unknown	1.02	0.1	Oxygenated sesquiterpene
Unknown	0.23	0.02	Oxygenated sesquiterpene
Unknown	6.82	0.68	Oxygenated sesquiterpene
Unknown	2.07	0.21	Oxygenated sesquiterpene
Unknown	1.19	0.12	Oxygenated sesquiterpene
Unknown	0.65	0.07	Oxygenated sesquiterpene
Unknown	0.56	0.06	Unknown
Unknown	0.19	0.02	Oxygenated sesquiterpene
Geranyl- <i>para</i> -cymene	1.08	0.11	Diterpene
Palmitic acid	6.97	0.7	Aliphatic acid
(E,E)-Geranylinalool	0.81	0.08	Diterpenic alcohol
[4]-Shogaol	0.48	0.05	Gingerol derivative
Unknown	0.31	0.03	Gingerol derivative
Unknown	0.91	0.09	Gingerol derivative
Unknown	0.20	0.02	Oxygenated diterpene
Linoleic acid	6.57	0.66	Aliphatic acid
Oleic acid	5.77	0.58	Aliphatic acid
[4]-Gingerol	1.17	0.12	Gingerol derivative
[4]-Isogingerol?	2.98	0.3	Gingerol derivative
[6]-Isoshogaol?	1.63	0.16	Gingerol derivative
[6]-Paradol	4.84	0.48	Gingerol derivative
Methyl [6]-isoshogaol?	0.40	0.04	Gingerol derivative
Methyl [6]-paradol?	0.26	0.03	Gingerol derivative
[6]-Dihydroparadol?	0.49	0.05	Gingerol derivative
[6]-Shogaol	22.01	2.2	Gingerol derivative
Methyl [6]-shogaol	2.43	0.24	Gingerol derivative
Acetoxy-[6]-dihydroparadol	0.35	0.03	Gingerol derivative
Diacetoxy-[4]-gingerdiol	0.79	0.08	Gingerol derivative
Geranyl laurate	0.48	0.05	Monoterpenic ester
[6]-Gingerol	34.34	3.43	Gingerol derivative
[6]-Isogingerol?	0.70	0.07	Gingerol derivative
[8]-Isoshogaol	0.69	0.07	Gingerol derivative
1-(4'-Hydroxy-3'-methoxyphenyl)-7-dodecen-3-one?	0.44	0.04	Gingerol derivative

[8]-Paradol	0.72	0.07	Gingerol derivative
Acetoxy-[6]-gingerol	0.25	0.03	Gingerol derivative
[6]-Gingerdiol isomer I	0.45	0.04	Gingerol derivative
[6]-Gingerdiol isomer II	0.15	0.01	Gingerol derivative
[8]-Shogaol	4.78	0.48	Gingerol derivative
5-Acetoxy-[6]-gingerdiol	0.15	0.01	Gingerol derivative
Methyl 5-acetoxy-[6]-gingerdiol	8.83	0.88	Gingerol derivative
Diacetoxy-[6]-gingerdiol	4.97	0.5	Gingerol derivative
[8]-Gingerdione	1.39	0.14	Gingerol derivative
1-Dehydro-[6]-gingerdione	1.62	0.16	Gingerol derivative
[8]-Gingerol	14.21	1.42	Gingerol derivative
[10]-Isoshogaol	4.82	0.48	Gingerol derivative
[10]-Paradol	0.18	0.02	Gingerol derivative
Unknown	1.03	0.1	Gingerol derivative
Unknown	0.21	0.02	Gingerol derivative
[10]-Shogaol	4.69	0.47	Gingerol derivative
Unknown	0.91	0.09	Gingerol derivative
[10]-Gingerdione	2.29	0.23	Gingerol derivative
1-Dehydro-[8]-gingerdione	0.23	0.02	Gingerol derivative
[12]-Isoshogaol?	1.02	0.1	Gingerol derivative
Unknown	0.10	0.01	Gingerol derivative
[12]-Shogaol	0.34	0.03	Gingerol derivative
[12]-Gingerdione	0.46	0.05	Gingerol derivative
1-Dehydro-[10]-gingerdione	0.18	0.02	Gingerol derivative
[6]-Gingerdiol geranial acetal	0.54	0.05	Gingerol derivative
(E)-Gingerenone A	0.37	0.04	Gingerol derivative
Consolidated total	630.91	63.09	

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

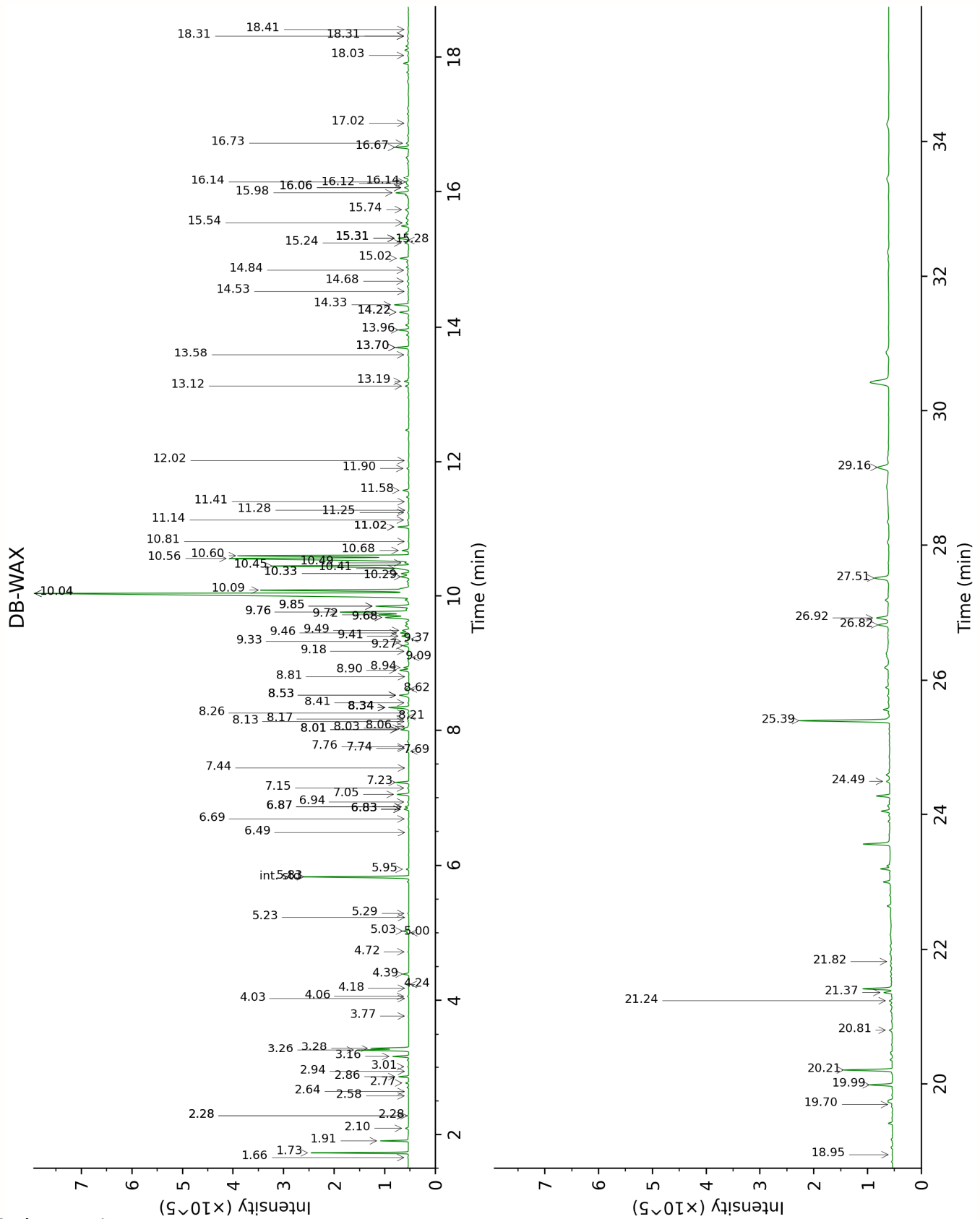
Note: Individual compounds contents were corrected following the method of Cachet et al., 2016 (Flavour and Fragrance Journal guidelines).

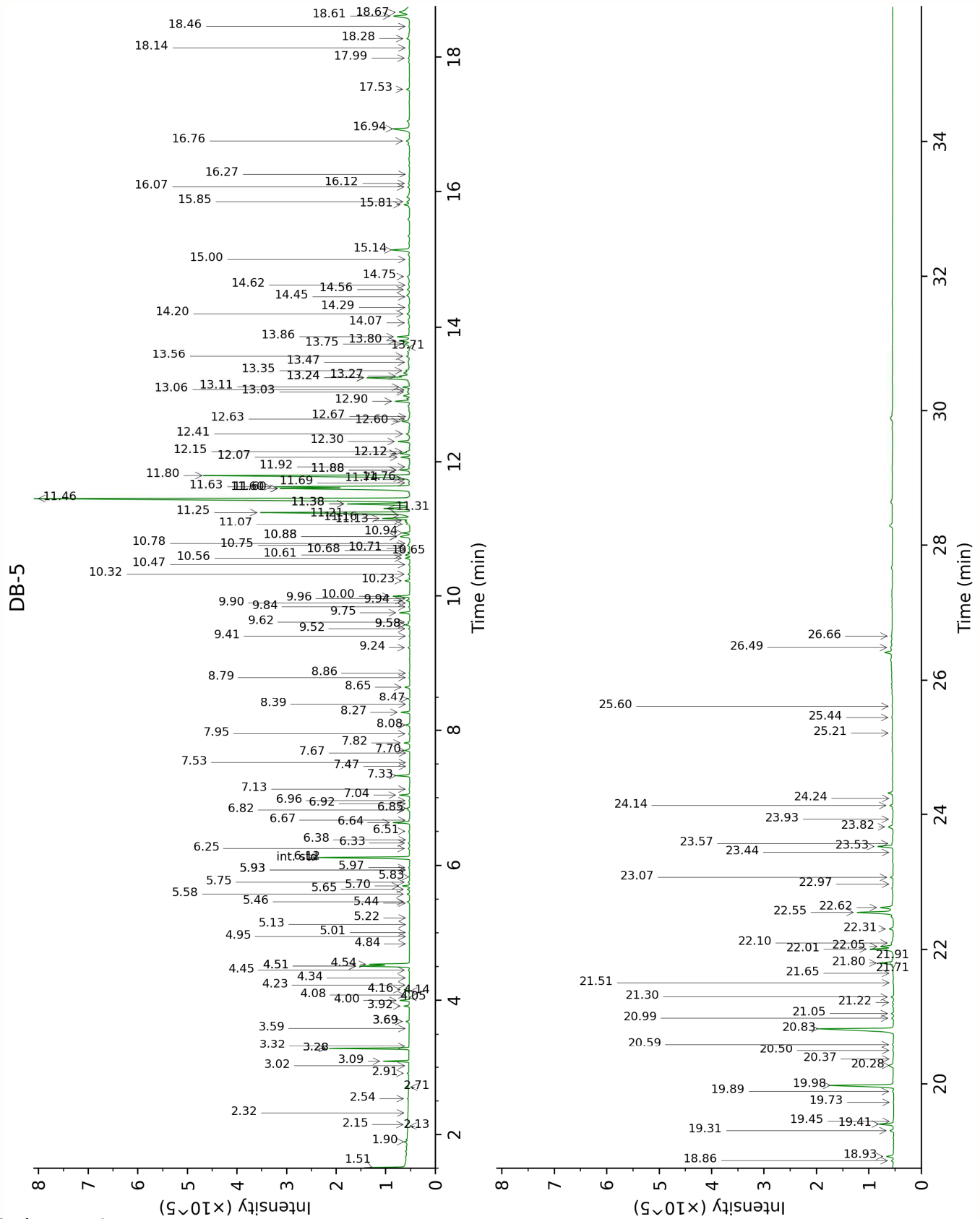
Unknown compounds are expressed in equivalents of internal standard without correction.

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: The occurrence of unknown compounds is to be expected in many samples, and does not denote particular problems unless noted otherwise in the conclusion.

Bracketed value (xx): A bracketed percent value indicate that two or more compound percentage could not be solved due to coelution.





FULL ANALYSIS DATA

Hexanal	Column DB-WAX			Column DB-5		
	1.91	1050.6	0.60	1.52	804.0	0.62
Biomarker <i>Z. officinale</i> CO2, I	2.28*	1088.9	[0.03]	1.90	836.8	0.09
Unknown COCI I [m/z 55, 83 (89), 82 (70), 67 (66), 41 (55), 69 (46), 111 (37)... 126 (2)]				2.13	856.8	0.06
Unknown COCI II [m/z 55, 83 (79), 67 (65), 41 (63), 82 (60), 69 (58)... 111 (27), 126 (9)]				2.15	858.7	0.03
Hexanol	5.29	1317.7	0.03	2.32	873.5	0.01
2-Heptanone	3.01	1148.2	0.03	2.54	891.7	0.02
2-Heptanol	5.00	1297.0	0.05	2.71	905.6	0.04
Tricyclene				2.91	919.6	0.04
α -Thujene	1.48	1005.8	tr	3.02	927.1	tr
α -Pinene	1.42	1000.1	0.63	3.09	931.7	0.64
Camphene	1.73	1032.2	2.01	3.28*	944.6	[2.01]
α -Fenchene	1.66	1024.8	0.02	3.28*	944.6	[2.01]
Thuja-2,4(10)-diene	2.28*	1088.9	[0.03]	3.32	947.3	tr
Unknown ZIOF V [m/z 91, 119 (60), 77 (36), 92 (31), 93 (31)... 134 (23)]	2.64	1119.1	0.01	3.59	965.3	tr
Sabinene	2.28*	1088.9	[0.03]	3.69*	972.4	[0.11]
β -Pinene	2.10	1069.8	0.09	3.69*	972.4	[0.11]
6-Methyl-5-hepten-2-one	5.03	1298.9	0.17	3.92	987.8	0.15
Myrcene	2.86	1136.6	0.26	4.00	993.5	0.26
6-Methyl-5-hepten-2-ol	6.87*	1432.8	[0.12]	4.05	996.6	0.01
Unknown CULO LI [m/z 79, 108 (79), 52 (43), 80 (42), 77 (27)]				4.08	998.8	0.02
α -Phellandrene	2.77	1129.2	0.08	4.14	1002.8	0.08
Octanal	4.39	1250.7	0.19	4.16	1004.3	0.18
Δ^3 -Carene	2.58	1114.1	0.02	4.23	1008.5	0.01
α -Terpinene	2.94	1142.7	0.01	4.34	1015.4	tr
<i>para</i> -Cymene	4.06	1227.4	0.04	4.45	1022.6	0.04
β -Phellandrene	3.26	1167.6	1.49	4.51*†	1026.5	[1.66]
Limonene	3.16	1160.2	0.44	4.51*†	1026.5	[1.66]
1,8-Cineole	3.28	1169.6	1.03	4.54*†	1028.2	[1.26]
2-Heptyl acetate	4.18	1235.9	0.01	4.84	1047.5	0.01
2,6-Dimethyl-5-heptenal (melonal)	5.23	1313.5	0.01	4.95	1054.3	tr
γ -Terpinene	3.77	1206.7	0.01	5.01	1058.1	0.02

<i>cis</i> -Sabinene hydrate	6.83*	1430.2	[0.15]	5.13	1065.7	tr
<i>cis</i> -Linalool oxide (fur.)	6.49	1404.5	0.01	5.22	1071.9	0.01
<i>trans</i> -Linalool oxide (fur.)	6.83*	1430.2	[0.15]	5.44	1085.9	0.01
Terpinolene	4.24	1239.9	0.08	5.46	1087.1	0.08
Unknown ZIOF IX [m/z 96, 109 (55), 79 (41), 67 (38), 41 (36)... 150 (3)]	8.62	1566.6	0.14	5.58	1094.3	0.09
Rosefuran	5.94	1365.0	0.08	5.65	1098.8	0.07
Linalool	8.01*	1519.0	[0.24]	5.70	1102.0	0.22
2-Nonanol	7.69	1494.4	0.09	5.75	1105.5	0.05
endo-Fenchol	8.26	1538.2	0.04	5.83	1110.7	0.02
<i>cis-para</i> -Menth-2-en-1-ol	8.06	1522.6	0.02	5.93*	1117.2	[0.02]
Bornyl methyl ether	4.03	1225.1	0.01	5.93*	1117.2	[0.02]
(<i>E</i>)-4,8-Dimethylnona-1,3,7-triene	4.72	1273.9	0.03	5.97	1119.5	0.04
Camphor	7.15	1453.6	0.04	6.25	1137.7	0.06
Camphene hydrate	8.41	1550.0	0.03	6.33	1142.9	0.05
exo-Isocitral	7.44	1475.8	0.02	6.38	1146.0	0.02
Citronellal	6.94	1438.2	0.04	6.51	1154.2	0.04
Borneol	9.68*	1651.5	[1.02]	6.64	1162.5	0.55
Isoneral	7.76	1499.2	0.02	6.67	1164.8	0.04
Rosefuran oxide	8.53*	1559.5	[0.37]	6.82	1174.5	0.06
Terpinen-4-ol	8.53*	1559.5	[0.37]	6.85	1176.0	0.11
Isogeranial	8.13	1528.4	0.04	6.92	1180.5	0.01
<i>para</i> -Cymen-8-ol	11.41	1796.2	0.03	6.96	1183.4	0.03
α -Terpineol	9.68*	1651.5	[1.02]	7.04	1188.7	0.36
Myrtenol	10.81	1745.1	0.02	7.13	1194.4	0.04
Decanal	7.23	1459.9	0.41	7.33	1207.3	0.46
<i>trans</i> -Carveol	11.28	1785.3	0.01	7.47	1216.5	0.01
Bornyl formate	8.01*	1519.0	[0.24]	7.52	1220.4	0.02
Nerol	11.02*	1763.4	[0.38]	7.67	1229.9	0.01
Citronellol	10.68	1733.8	0.22	7.70	1232.4	0.20
Neral	9.41	1629.1	0.24	7.82	1239.9	0.18
Unknown BODA V [m/z 109, 119 (84), 91 (81), 134 (55)... 137 (27)...]	11.25	1782.5	0.05	7.95	1249.0	0.04
Geraniol	11.58	1811.0	0.22	8.08	1257.7	0.17
Geranial	10.04*†	1680.4	[20.26]	8.27	1270.4	0.30
Citronellyl formate	8.81	1580.9	0.01	8.39	1278.3	0.03
Bornyl acetate	8.17	1531.2	0.05	8.47	1284.1	0.06
2-Undecanone	8.53*	1559.5	[0.37]	8.65	1296.1	0.18
Geranyl formate	9.85*	1665.1	[1.15]	8.79	1305.6	0.03
Carvacrol	15.28	2157.7	0.05	8.86	1308.8	0.03
δ -Elemene	6.87*	1432.8	[0.12]	9.24	1335.7	0.06
α -Cubebene	6.69	1419.5	0.03	9.41	1347.7	0.02

Citronellyl acetate	9.37	1625.6	0.04	9.52	1355.6	0.04
Cyclosativene I	6.83*	1430.2	[0.15]	9.58*	1359.8	[0.17]
Unknown ZIOF X [m/z 95, 110 (87), 43 (58), 139 (52)...]				9.58*	1359.8	[0.17]
Cyclosativene II	6.87*	1432.8	[0.12]	9.62	1362.5	0.06
α -Copaene	7.05	1446.6	0.38	9.75	1372.4	0.36
Unknown ZIOF XII [m/z 139, 69 (63), 83 (53), 43 (49), 41 (39)...]	16.06*	2237.0	[0.17]	9.84	1378.5	0.04
<i>cis</i> - β -Elemene	8.21	1534.2	0.02	9.90	1382.5	0.02
Geranyl acetate	10.49	1718.3	0.12	9.94	1385.3	0.13
β -Cubebene	7.74	1497.5	0.02	9.96	1387.2	0.02
β -Elemene	8.34*	1544.5	[0.76]	10.00	1389.7	0.57
Sesquithujene	8.03	1520.8	0.17	10.23	1406.1	0.16
β -Caryophyllene	8.34*	1544.5	[0.76]	10.32	1413.3	0.07
β -Copaene	8.34*	1544.5	[0.76]	10.47	1424.1	0.04
γ -Elemene	8.94	1591.4	0.17	10.56	1431.1	0.16
<i>trans</i> - α -Bergamotene	8.34*	1544.5	[0.76]	10.61	1434.6	0.16
Unknown ZIOF XIV [m/z 41, 97 (78), 69 (77), 43 (71), 125 (67), 55 (56)... 168 (39)]	17.02	2338.6	0.04	10.65	1437.9	0.01
Sesquisabinene A	9.09	1603.4	0.02	10.68	1439.7	0.01
Unknown ZIOF XV [m/z 139, 69 (60), 41 (51), 43 (47), 119 (41)... 204 (1)]				10.70	1441.9	0.04
Unknown ZIOF XVI [m/z 139, 69 (43), 91 (42), 41 (36), 81 (36), 43 (36)... 204 (5)]	14.22*	2054.3	[0.35]	10.75	1445.4	0.11
α -Humulene	9.18	1610.7	0.04	10.78	1447.4	0.04
allo-Aromadendrene	8.90	1588.3	0.33	10.88*	1455.1	[0.46]
Sesquisabinene B	9.27	1617.6	0.21	10.88*	1455.1	[0.46]
(<i>E</i>)- β -Farnesene	9.46	1632.9	0.29	10.94	1459.2	0.25
Selina-4,11-diene	9.33	1622.7	0.16	11.07	1469.3	0.17
γ -Muurolene	9.49	1636.0	0.26	11.13†	1473.5	0.16
Germacrene D	9.72	1654.7	0.99	11.16	1476.0	1.00
β -Selinene	9.76*	1658.0	[2.54]	11.21	1479.8	0.17
<i>ar</i> -Curcumene	10.60	1727.2	5.61	11.25	1482.6	5.50
Unknown ZIOF XVII [m/z 161, 91 (100), 105 (93), 79 (89), 93 (89), 107 (79)... 204 (34)]	9.85*	1665.1	[1.15]	11.31	1487.1	0.98
Bicyclosesquiphellandrene?	9.76*	1658.0	[2.54]	11.38*	1492.2	[2.44]
epi-Cubebol	11.90	1839.8	0.07	11.38*	1492.2	[2.44]
α -Zingiberene	10.04*†	1680.4	[20.26]	11.46	1498.1	18.80
β -Bisabolene	10.09*†	1684.4	[4.70]	11.60*	1509.4	[5.06]

γ -Cadinene	10.29	1700.8	0.34	11.60*	1509.4	[5.06]
(3E,6E)- α -Farnesene	10.45	1714.3	5.05	11.63	1511.5	4.57
7-epi- α -Selinene	10.33*	1704.8	[0.26]	11.69	1516.0	0.07
<i>trans</i> -Calamenene	11.14	1773.1	0.07	11.74	1519.8	0.05
δ -Cadinene	10.33*	1704.8	[0.26]	11.76	1521.5	0.17
β -Sesquiphellandrene	10.56	1723.7	8.53	11.80	1524.6	7.89
(E)- γ -Bisabolene	10.41	1711.1	0.23	11.88*	1531.0	[0.37]
Unknown ZIOF XIX [m/z 177, 159 (67), 41 (43), 91 (43), 43 (41)... 220 (t)]	13.19	1956.8	0.15	11.88*	1531.0	[0.37]
α -Calacorene	12.02	1850.2	0.04	11.92	1534.7	0.08
α -Elemol	13.96	2029.2	0.37	12.07	1546.1	0.30
Germacrene B	11.02*	1763.4	[0.38]	12.12*	1550.6	[0.36]
Unknown ZIOF XXI [m/z 98, 97 (95), 126 (91), 95 (69), 41 (67), 55 (55), 123 (53)... 220 (3)]	14.53	2083.5	0.03	12.12*	1550.6	[0.36]
<i>cis</i> -Sesquisabinene hydrate	13.12	1950.2	0.13	12.15	1552.6	0.13
(E)-Nerolidol	13.70*	2004.4	[0.46]	12.30	1564.4	0.39
α -Turmerol	15.31*	2161.1	[0.41]	12.41	1573.3	0.15
<i>trans</i> -Sesquisabinene hydrate	14.22*	2054.3	[0.35]	12.60	1588.0	0.32
Unknown ZIOF XXIII [m/z 132, 118 (89), 145 (85), 119 (79), 117 (60)...]	13.58	1993.0	0.04	12.63	1590.6	0.06
Unknown ZIOF XXIV [m/z 132, 118 (82), 145 (76), 119 (69), 117 (56), 91 (43), 135 (42)...]	13.70*	2004.4	[0.46]	12.67	1593.5	0.02
<i>cis</i> -Zingiberenol	14.33	2064.6	0.49	12.90	1611.8	0.53
Unknown CULO XXV [m/z 119, 85 (92), 105 (37), 120 (36), 91 (28)... 218 (6)]	16.14*	2245.7	[0.14]	13.03	1623.2	0.13
γ -Eudesmol	14.84	2114.3	0.05	13.06	1625.7	0.06
<i>trans</i> -Zingiberenol	15.02	2131.7	0.35	13.11	1629.2	0.25
Zingerone	20.21	2705.8	1.65	13.24*	1640.7	[1.79]
β -Eudesmol	15.31*	2161.1	[0.41]	13.24*	1640.7	[1.79]
α -Eudesmol	15.24	2154.2	0.14	13.27	1642.7	0.39
Selin-11-en-4 α -ol	15.54	2183.6	0.13	13.35	1649.3	0.18
(3E,5E)-7-Hydroxyfarnesene	16.12	2243.4	0.09	13.47	1659.6	0.06
β -Bisabolol	14.68	2098.1	0.07	13.56	1667.1	0.16
Zingerone methyl ether	18.95	2554.9	0.04	13.71	1679.1	0.06
α -Bisabolol	15.31*	2161.1	[0.41]	13.75	1682.8	0.26
Unknown ZIOF XXXVIII [m/z 137, 119 (70), 84 (69), 41	15.98	2229.1	0.47	13.80	1686.9	0.46

(68), 69 (53), 55 (45), 109 (38)... 222 (2)]						
Unknown ZIOF XXVI [m/z 69, 41 (59), 118 (33), 43 (32), 55 (31)... 234? (t)]	16.67	2300.1	0.48	13.86	1691.9	0.47
ar-Curcumen-15-al	16.14*	2245.7	[0.14]	14.07	1709.0	0.10
Unknown ZIOF XXXIX [m/z 119, 91 (31), 105 (29), 41 (25), 133 (23), 158 (21)...]	16.73	2306.6	0.10	14.20	1720.6	0.14
Oplopanone	18.03	2449.0	0.05	14.29	1728.8	0.03
(2E,6E)-Farnesal	15.74	2203.5	0.15	14.45	1742.5	0.04
Unknown ZIOF XXVII [m/z 82, 43 (85), 91 (67), 93 (66), 41 (66), 69 (59), 106 (47)... 218 (5)...]				14.56	1751.7	0.12
Unknown ZIOF XXIX [m/z 43, 82 (100), 41 (86), 69 (76), 93 (72), 91 (72)... 218 (4)...]				14.62	1757.5	0.03
Unknown ZIOF XXX [m/z 79, 41 (77), 135 (75), 69 (74), 43 (70)... 220 (9)]	18.31*	2481.1	[0.08]	14.75	1768.5	0.12
Unknown ZIOF XXXII [m/z 69, 41 (96), 43 (90), 109 (51), 55 (42), 81 (33)...]	18.31*	2481.1	[0.08]	15.00	1790.4	0.03
Unknown AMBA XVIII [m/z 69, 43 (95), 41 (84), 109 (78), 95 (54), 93 (49)... 177 (36), 220 (2)...]	19.99	2678.7	0.76	15.14	1802.8	0.78
Unknown AMBA XXII [m/z 43, 109 (77), 69 (65), 41 (60), 55 (51), 95 (44), 135 (43)... 207 (19)...]				15.81	1863.3	0.24
Unknown ZIOF XL [m/z 137, 218 (84), 119 (72), 69 (64), 175 (61), 41 (60), 93 (58)]	20.81	2780.9	0.14	15.85	1867.4	0.14
Unknown ZIOF XXXIII [m/z 125, 41 (88), 109 (76), 69 (76), 151 (68), 55 (45), 95 (36)... 236 (21)]	21.37	2852.5	0.28	16.07	1887.2	0.08
Unknown MOPE VI [m/z 43, 109 (89), 69 (71), 41 (63), 94 (53), 79 (47), 93 (44)...]	21.24	2836.8	0.10	16.12	1891.9	0.06
Unknown ZIOF XXXIV [m/z 125, 41 (86), 151 (78), 109 (67), 69 (63)... 236 (22)]	21.82	2912.5	0.05	16.27	1905.1	0.02

Geranyl- <i>para</i> -cymene	16.06*	2237.0	[0.17]	16.76	1952.1	0.17
Palmitic acid				16.94	1969.2	0.93
(<i>E,E</i>)-Geranylinalool	18.41	2492.1	0.03	17.53	2025.7	0.12
[4]-Shogaol				17.99	2071.5	0.06
Unknown ZIOF XLI [m/z 135, 150 (34), 77 (13), 163 (11)... 262 (2)]				18.14	2086.5	0.04
Unknown ZIOF XLII [m/z 137, 203 (15), 138 (11), 105 (11), 41 (9)... 274 (7), 286? (1)]				18.28	2100.2	0.10
Unknown ZIOF XLIII [m/z 69, 41 (44), 121 (37), 107 (36), 81 (33)... 272 (2)]				18.46	2118.4	0.02
Linoleic acid				18.61	2134.3	0.87
Oleic acid				18.67	2140.7	0.78
[4]-Gingerol				18.86	2160.1	0.13
[4]-Isogingerol?				18.93	2166.6	0.33
[6]-Isoshogaol?	24.49	3288.7	0.16	19.31	2205.8	0.20
[6]-Paradol				19.40	2216.3	0.61
Methyl [6]-isoshogaol?				19.45	2220.7	0.05
Methyl [6]-paradol?				19.73	2250.9	0.03
[6]-Dihydroparadol?				19.89	2268.1	0.06
[6]-Shogaol	25.39	3424.9	3.42	19.98	2277.9	2.75
Methyl [6]-shogaol				20.28	2309.8	0.31
Acetoxy-[6]-dihydroparadol				20.37	2320.3	0.04
Diacetoxy-[4]-gingerdiol				20.50	2334.5	0.08
Geranyl laurate	19.70	2643.4	0.03	20.59	2345.2	0.07
[6]-Gingerol				20.83	2371.5	4.02
[6]-Isogingerol?				20.99	2388.9	0.08
[8]-Isoshogaol				21.05	2396.6	0.09
1-(4'-Hydroxy-3'- methoxyphenyl)-7- dodecen-3-one?				21.22	2415.0	0.06
[8]-Paradol				21.30	2424.7	0.09
Acetoxy-[6]-gingerol				21.51	2449.0	0.03
[6]-Gingerdiol isomer I				21.65	2465.5	0.05
[6]-Gingerdiol isomer II				21.71	2472.6	0.02
[8]-Shogaol	26.92	3644.7	0.60	21.80	2483.1	0.62
5-Acetoxy-[6]-gingerdiol				21.91	2495.0	0.02
Methyl 5-acetoxy-[6]- gingerdiol				22.01	2506.9	1.02
Diacetoxy-[6]-gingerdiol	26.82	3631.9	0.48	22.05	2511.5	0.54
[8]-Gingerdione				22.10	2517.8	0.17
1-Dehydro-[6]-gingerdione				22.31	2542.9	0.18

[8]-Gingerol				22.55	2572.2	1.72
[10]-Isoshogaol	27.51	3713.6	0.85	22.62	2580.8	0.64
[10]-Paradol				22.97	2623.2	0.02
Unknown ZIOF XLVII [m/z 137, 109 (24), 207 (24), 43 (24)... 344 (14)]				23.07	2635.8	0.12
Unknown ZIOF XLVI [m/z 137, 55 (23), 41 (21), 69 (18), 150 (17), 135 (14)... 330 (12)]				23.44	2681.9	0.02
[10]-Shogaol	29.16	3866.2	0.78	23.53	2693.1	0.62
Unknown ZIOF XLVIII [m/z 137, 205 (13), 332 (9), 122 (7)]				23.57	2698.5	0.10
[10]-Gingerdione				23.82	2730.1	0.28
1-Dehydro-[8]-gingerdione				23.93	2744.6	0.03
[12]-Isoshogaol?				24.14	2771.0	0.14
Unknown ZIOF XLIX [m/z 137, 138 (8), 122 (6), 372 (6)]				24.24	2784.5	0.01
[12]-Shogaol				25.21	2913.3	0.05
[12]-Gingerdione				25.44	2945.2	0.06
1-Dehydro-[10]- gingerdione				25.60	2968.1	0.02
[6]-Gingerdiol geranial acetal				26.49	3085.6	0.07
(E)-Gingerenone A				26.66	3106.8	0.04
Total reported	81.83%			91.89%		

*: Two or more compounds are coeluting on this column

[xx]: Duplicate percentage due to coelutions, only the first one is 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