Date : January 24, 2023

Certificate of Analysis – GC Profiling

Sample identification

Internal code : 23A17-PTH01
Customer identification : Peru Balsam Oil - Certifiate of province Cental America | Certificate of Customs Origin France - PN0108R
Type : Essential oil
Source : *Myroxylon balsamum*
Customer : Plant Therapy

Analysis

Method: PC-MAT-014 ISO - Analysis of the composition of an essential oil or other volatile liquid by FAST GC-FID (in French); identifications validated by GC-MS.
Analyst : Amélie Simard, Analyste
Analysis date : January 23, 2023

Checked and approved by :

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

Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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. The results only describe the samples that were submitted to the assays.

Laboratoire PhytoChemia
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PHYSICOCHEMICAL DATA

Physical aspect: Light orange viscous liquid
Refractive index: 1.5738 ± 0.0003 (20 °C; method PC-MAT-016)

CONCLUSION

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

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Analysis summary – Consolidated contents

New readers of similar reports are encouraged to read table footnotes at least once.

Identification	%	Class
Styrene	0.01	Simple phenolic
Benzaldehyde	0.08	Simple phenolic
Benzyl alcohol	0.96	Simple phenolic
(*E*)-β-Ocimene	tr	Monoterpene
Acetophenone	0.02	Simple phenolic
Benzyl formate	0.03	Phenolic ester
ortho-Guaiacol	0.03	Simple phenolic
Methyl benzoate	0.01	Phenolic ester
Benzyl acetate	0.01	Phenolic ester
Ethyl benzoate	0.02	Phenolic ester
Terpinen-4-ol	0.01	Monoterpenic alcohol
α-Terpineol	0.01	Monoterpenic alcohol
Benzoic acid	6.15	Simple phenolic
4-Vinylguaiacol	0.13	Simple phenolic
Unknown	0.03	Unknown
Eugenol	0.01	Phenylpropanoid
Methyl (*E*)-cinnamate	0.02	Phenylpropanoid ester
Vanillin	1.00	Simple phenolic
Coumarin	0.04	Coumarin
(*E*)-Isoeugenol	0.03	Phenylpropanoid
(*E*)-β-Farnesene	0.04	Sesquiterpene
Ethyl (*E*)-cinnamate	0.03	Phenylpropanoid ester
(*E*)-Cinnamic acid	5.10	Phenylpropanoid
ar-Curcumene	0.02	Sesquiterpene
α-Selinene	0.03	Sesquiterpene
α-Muurolene	0.01	Sesquiterpene
Unknown	0.01	Unknown
Unknown	0.02	Unknown
β-Bisabolene	0.01	Sesquiterpene
(3*E*,6*E*)-α-Farnesene	0.02	Sesquiterpene
Guaiacylacetone	0.27	Phenylpropanoid
(*E*)-α-Bisabolene	0.02	Sesquiterpene
Unknown	0.06	Unknown
(*E*)-Nerolidol	4.03	Sesquiterpenic alcohol
Unknown	0.07	Unknown
Butyrovanillone?	0.02	Phenylbutanoid
Unknown	0.08	Unknown
τ-Cadinol	0.02	Sesquiterpenic alcohol
(*E*)-Stilbene?	0.01	Stilbene
(2*E*,6*Z*)-Farnesol	0.01	Sesquiterpenic alcohol
Unknown	0.01	Unknown
Unknown	0.03	Unknown
(*E*)-Coniferaldehyde	0.03	Phenylpropanoid
Benzyl benzoate	55.71	Phenolic ester
Benzyl hydrocinnamate	0.29	Phenylpropanoid ester

Benzyl (*Z*)-cinnamate	0.76	Phenylpropanoid ester
Geranyl benzoate	0.02	Phenolic ester
Benzyl (*E*)-cinnamate	23.63	Phenylpropanoid ester
Benzyl (*E*)-ferulate	0.13	Phenylpropanoid ester
Consolidated total	**99.10%**	

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

Note: no correction factor was applied

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: Unknown compounds' mass spectral data is presented in the "Full analysis data" table. The occurrence of unknown compounds is to be expected in many samples, and does not denote particular problems unless noted otherwise in the conclusion.

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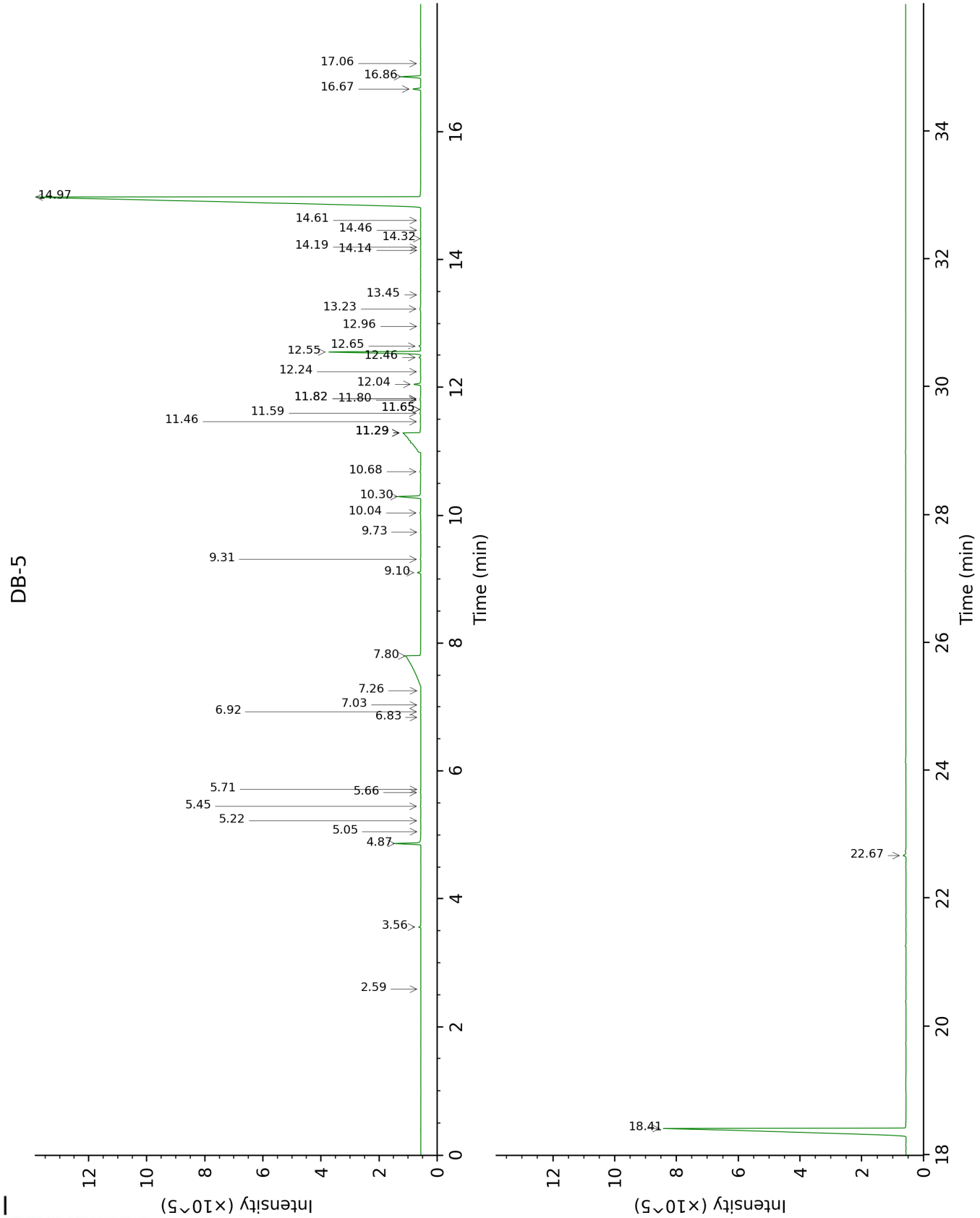
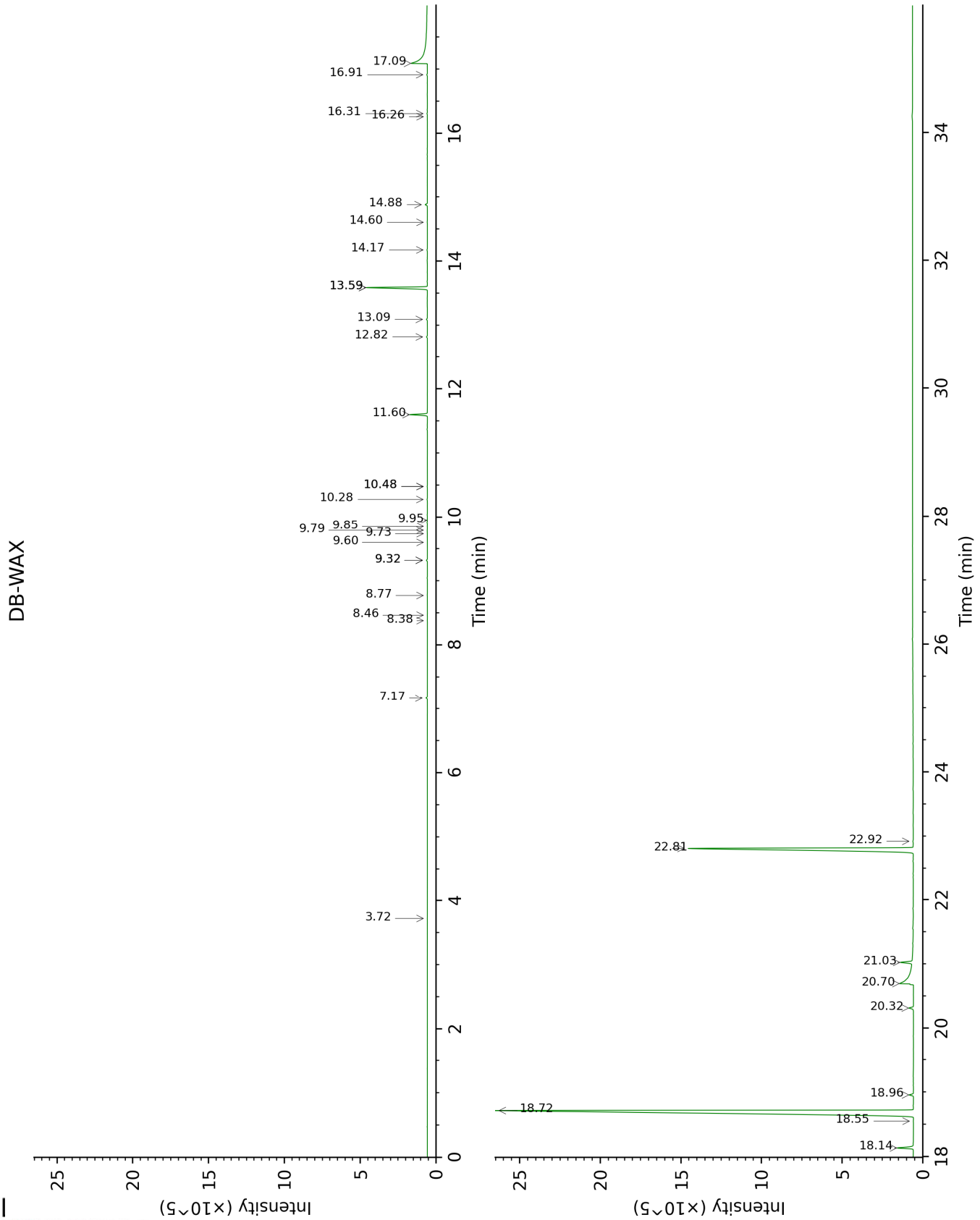

DB-5
Intensity (×10^5)
Time (min)
17.06
16.86
16.67
14.97
14.61
14.46
14.32
14.19
14.14
13.45
13.23
12.96
12.65
12.55
12.46
12.24
12.04
11.82
11.80
11.65
11.59
11.46
11.29
10.68
10.30
10.04
9.73
9.31
9.10
7.80
7.26
7.03
6.92
6.83
5.71
5.66
5.45
5.22
5.05
4.87
3.56
2.59
22.67
18.41


DB-WAX
Intensity (×10^5)
Time (min)
17.09
16.91
16.31
16.26
14.88
14.60
14.17
13.59
13.09
12.82
11.60
10.48
10.28
9.95
9.79
9.85
9.73
9.60
9.32
8.77
8.46
8.38
7.17
3.72
22.92
22.81
21.03
20.70
20.32
18.96
18.72
18.55
18.14

FULL ANALYSIS DATA

Identification	Column DB-5			Column DB-WAX		
	R.T	R.I	%	R.T	R.I	%
Styrene	2.59	886	0.01	3.72	1212	0.01
Benzaldehyde	3.56	953	0.08	7.16	1462	0.08
Benzyl alcohol	4.87	1037	0.96	11.60	1821	1.03
(*E*)-β-Ocimene	5.05	1049	tr			
Acetophenone	5.22	1060	0.02	8.77	1586	0.02
Benzyl formate	5.45	1074	0.03	9.32*	1630	0.07
ortho-Guaiacol	5.66	1087	0.03			
Methyl benzoate	5.71	1090	0.01	8.46	1562	0.01
Benzyl acetate	6.83	1161	0.01	9.79	1668	0.02
Ethyl benzoate	6.92	1166	0.02			
Terpinen-4-ol	7.03	1173	0.01	8.38	1555	0.01
α-Terpineol	7.26	1188	0.01	9.60	1652	0.01
Benzoic acid	7.80	1223	6.15	17.09	2356	5.96
4-Vinylguaiacol	9.10	1310	0.13	14.88	2127	0.14
Unknown [m/z 105, 77 (59), 122 (29), 51 (18), 106 (8), 50 (8)...]	9.31	1325	0.03			
Eugenol	9.73	1354	0.01	14.60	2100	0.02
Methyl (*E*)-cinnamate	10.04	1376	0.02	13.59*	2002	4.08
Vanillin	10.30	1394	1.00	18.14	2471	1.11
Coumarin	10.68	1422	0.04	16.91	2337	0.04
(*E*)-Isoeugenol	11.29*	1467	5.24	16.31	2272	0.03
(*E*)-β-Farnesene	11.29*	1467	[5.24]	9.32*	1630	[0.07]
Ethyl (*E*)-cinnamate	11.29*	1467	[5.24]	14.17	2058	0.03
(*E*)-Cinnamic acid	11.29*	1467	[5.24]	20.70†	2773	5.87
ar-Curcumene	11.46	1480	0.02	10.48*	1725	0.02
α-Selinene	11.59	1490	0.03	9.73	1664	0.01
α-Muurolene	11.65*	1495	0.02	9.85	1673	0.01
Unknown [m/z 151, 166 (47), 77 (35), 147 (35), 105 (25), 148 (24)...]	11.65*	1495	[0.02]			
Unknown [m/z 93, 105 (98), 147 (85), 77 (75), 148 (58), 122 (55)...]	11.80	1505	0.02			
β-Bisabolene	11.82*	1507	0.03	9.95	1681	0.01
(3*E*,6*E*)-α-Farnesene	11.82*	1507	[0.03]	10.28	1708	0.02
Guaiacylacetone	12.04	1525	0.27	18.96	2565	0.27
(*E*)-α-Bisabolene	12.24	1540	0.02	10.48*	1725	[0.02]

Unknown [m/z 109, 69 (74), 43 (55), 41 (30), 93 (28), 55 (23)...]	12.46	1558	0.06	12.82	1931	0.06
(*E*)-Nerolidol	12.55	1564	4.03	13.59*	2002	[4.08]
Unknown [m/z 109, 69 (75), 43 (55), 41 (29), 93 (28), 55 (26), 71 (22)...]	12.65	1572	0.07	13.09	1956	0.07
Butyrovanillone?	12.96	1596	0.02			
Unknown [m/z 131, 103 (51), 77 (32), 148 (23), 51 (12)...]	13.23	1618	0.08			
τ-Cadinol	13.45	1636	0.02			
(*E*)-Stilbene?	14.14	1693	0.01			
(2*E*,6*Z*)-Farnesol	14.19	1697	0.01	16.26	2267	0.01
Unknown [m/z 137, 122 (30), 105 (22), 196 (19), 77 (17)...]	14.32	1709	0.01			
Unknown [m/z 194, 115 (73), 193 (59), 179 (42), 116 (41), 91 (38)...]	14.46	1720	0.03			
(*E*)-Coniferaldehyde	14.61	1733	0.03	22.92	3061	0.04
Benzyl benzoate	14.97	1765	55.71	18.72	2537	55.57
Benzyl hydrocinnamate	16.67	1917	0.29	20.32	2726	0.32
Benzyl (*Z*)-cinnamate	16.86	1935	0.76	21.03†	2815	[5.87]
Geranyl benzoate	17.06	1955	0.02	18.55	2518	0.02
Benzyl (*E*)-cinnamate	18.41	2086	23.63	22.81	3047	23.52
Benzyl (*E*)-ferulate	22.67	2556	0.13			
Total identified		**98.84%**			**98.36%**	
Total reported		**99.13%**			**98.48%**	

*: Two or more compounds are coeluting on this column
[xx]: Duplicate percentage due to coelutions, not 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