Date : March 14, 2022

Certificate of Analysis – GC Profiling

Sample identification

Internal code : 22B28-PTH02
Customer identification : Peru Balsam - El Salvador - PN01042110R
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 : Pamela Lavoie, M.Sc., Chimiste
Analysis date : March 11, 2022

Checked and approved by :

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

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PHYSICOCHEMICAL DATA

Physical aspect: Yellow liquid
Refractive index: 1.5729 ± 0.0003 (20 °C; method PC-MAT-016)

CONCLUSION

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

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	1.03	Simple phenolic
(*E*)-β-Ocimene	0.02	Monoterpene
Acetophenone	0.01	Simple phenolic
Benzyl formate	0.02	Phenolic ester
ortho-Guaiacol	0.02	Simple phenolic
Methyl benzoate	0.01	Phenolic ester
Benzyl acetate	0.01	Phenolic ester
Ethyl benzoate	0.03	Phenolic ester
Terpinen-4-ol	0.01	Monoterpenic alcohol
α-Terpineol	0.01	Monoterpenic alcohol
Benzoic acid	5.77	Simple phenolic
4-Ethylguaiacol	0.01	Norphenylpropanoid
4-Vinylguaiacol	0.15	Simple phenolic
Unknown	0.03	Unknown
Eugenol	0.03	Phenylpropanoid
Dihydroeugenol	0.01	Phenylpropanoid
Methyl (*E*)-cinnamate	0.02	Phenylpropanoid ester
Vanillin	1.06	Simple phenolic
Coumarin	0.03	Coumarin
γ-Muurolene	0.06	Sesquiterpene
(*E*)-Cinnamic acid	4.84	Phenylpropanoid
Ethyl (*E*)-cinnamate	0.04	Phenylpropanoid ester
(*E*)-Isoeugenol	0.06	Phenylpropanoid
Acetovanillone	0.03	Simple phenolic
α-Selinene	0.03	Sesquiterpene
Unknown	0.02	Unknown
Unknown	0.02	Unknown
β-Bisabolene	0.03	Sesquiterpene
(3*E*,6*E*)-α-Farnesene	0.01	Sesquiterpene
Guaiacylacetone	0.32	Phenylpropanoid
(*E*)-α-Bisabolene	0.02	Sesquiterpene
Unknown	0.08	Unknown
(*E*)-Nerolidol	4.58	Sesquiterpenic alcohol
Unknown	0.08	Unknown
Butyrovanillone?	0.02	Phenylbutanoid
Methoxyeugenol	0.02	Phenylpropanoid
α-Cadinol	0.01	Sesquiterpenic alcohol
Syringaldehyde	0.03	Simple phenolic
(*E*)-Stilbene?	0.01	Stilbene
(2*E*,6*Z*)-Farnesol	0.01	Sesquiterpenic alcohol
Unknown	0.01	Unknown
Unknown	0.01	Unknown
(*E*)-Coniferaldehyde	0.01	Phenylpropanoid

Benzyl benzoate	54.94	Phenolic ester
Benzyl hydrocinnamate	0.07	Phenylpropanoid ester
Benzyl (*Z*)-cinnamate	0.73	Phenylpropanoid ester
Geranyl benzoate	0.03	Phenolic ester
Benzyl (*E*)-cinnamate	23.21	Phenylpropanoid ester
(*E*)-Cinnamyl (*E*)-cinnamate	0.04	Phenylpropanoid ester
Benzyl (*E*)-ferulate	0.09	Phenylpropanoid ester
Benzyl α-linolenate	0.03	Phenolic ester
Consolidated total	**97.83%**	

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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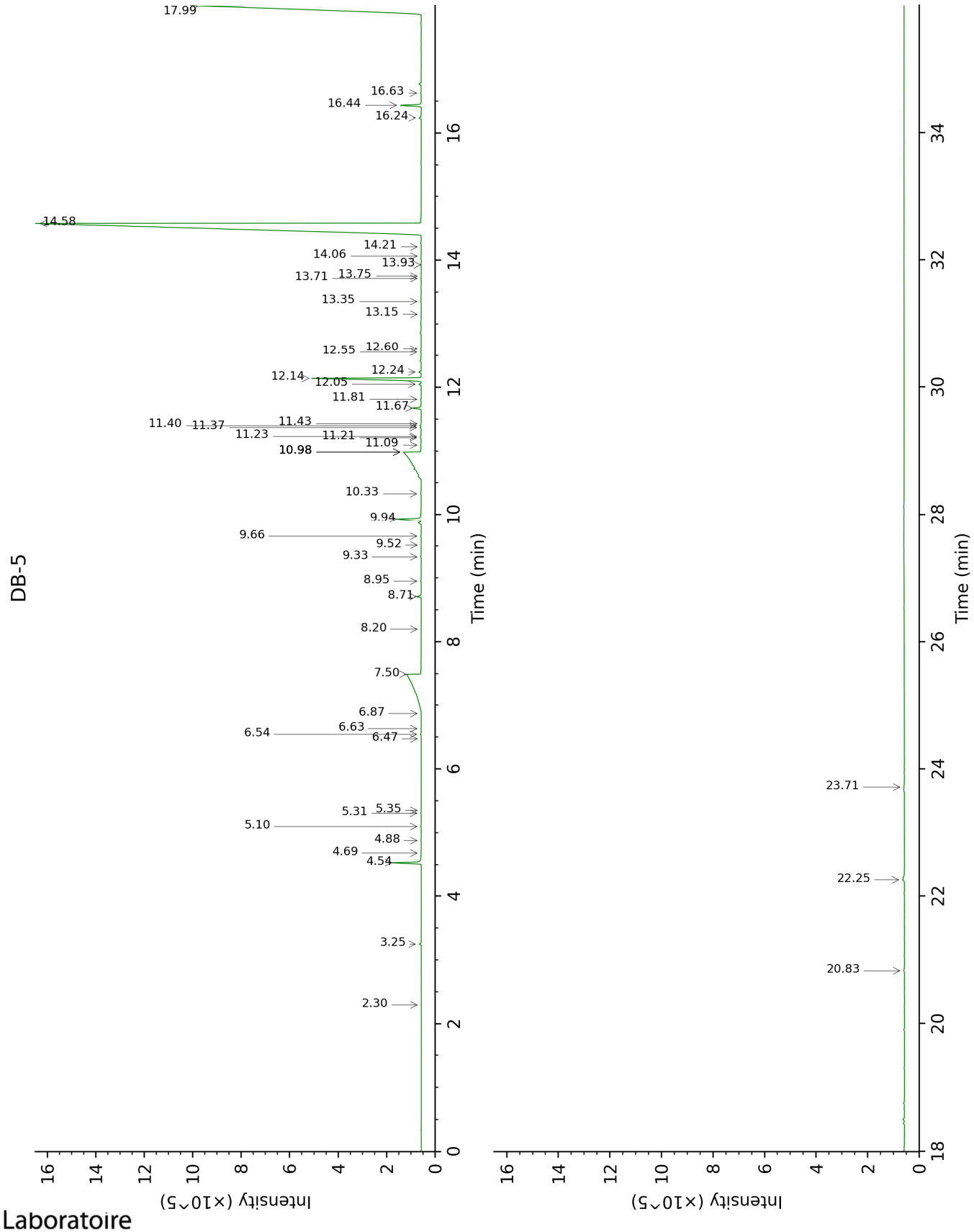
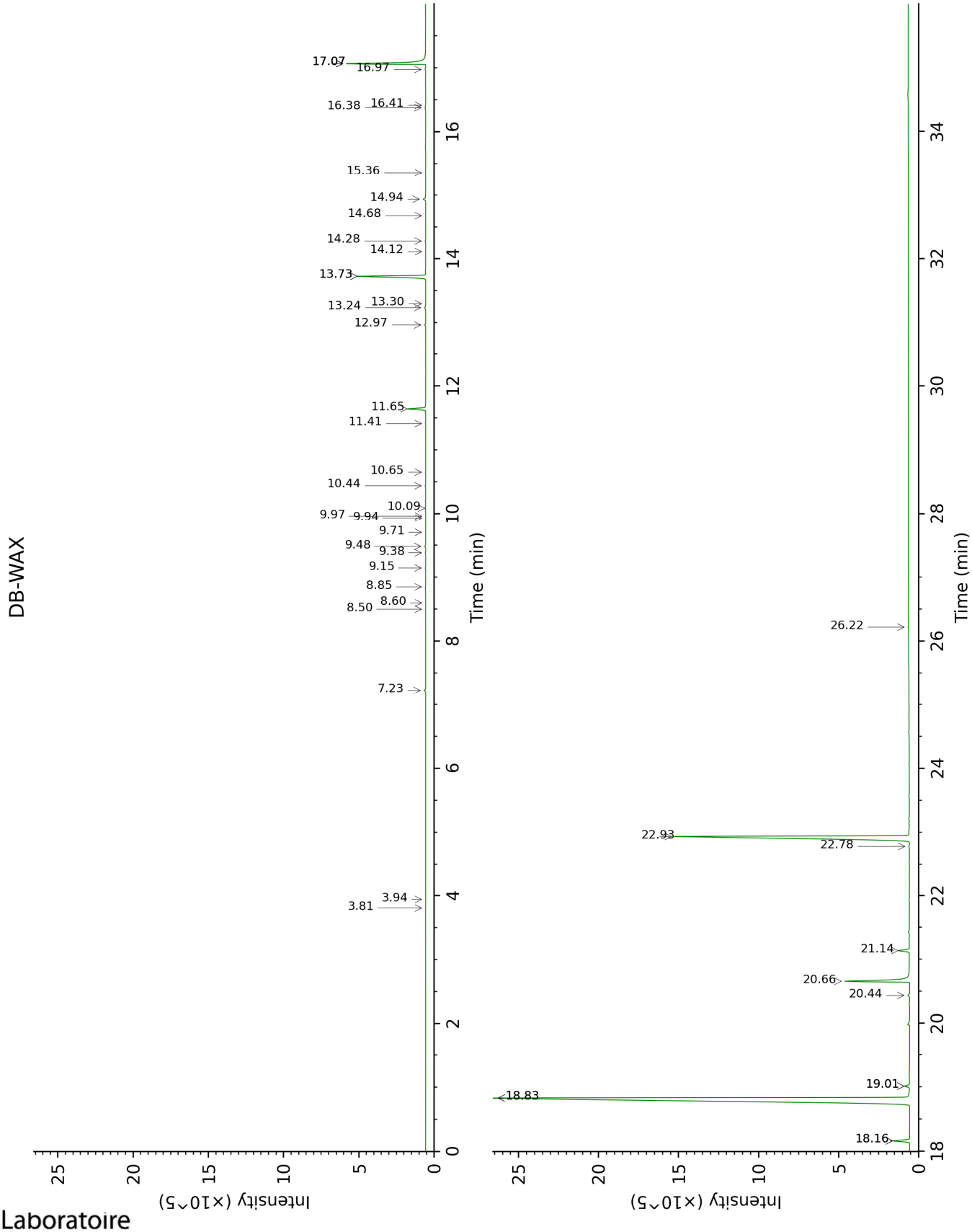

DB-5
17.99
16.63
16.44
16.24
14.58
14.21
14.06
13.93
13.71
13.75
13.35
13.15
12.55
12.60
12.24
12.14
12.05
11.81
11.67
11.40
11.37
11.43
11.23
11.21
11.09
10.98
10.33
9.94
9.66
9.52
9.33
8.95
8.71
8.20
7.50
6.87
6.63
6.54
6.47
5.31
5.35
5.10
4.88
4.69
4.54
3.25
2.30
Time (min)
Intensity (×10^5)
23.71
22.25
20.83
Time (min)
Intensity (×10^5)


DB-WAX
17.07
16.97
16.38
16.41
15.36
14.94
14.68
14.28
14.12
13.73
13.24
13.30
12.97
11.65
11.41
10.65
10.44
10.09
9.97
9.94
9.71
9.48
9.38
9.15
8.85
8.60
8.50
7.23
3.94
3.81
26.22
22.93
22.78
21.14
20.66
20.44
19.01
18.83
18.16
Time (min)
Intensity (×10^5)

FULL ANALYSIS DATA

Identification	Column DB-5			Column DB-WAX		
	R.T	R.I	%	R.T	R.I	%
Styrene	2.30	886	0.01	3.81	1209	0.01
Benzaldehyde	3.25	955	0.08	7.23	1458	0.09
Benzyl alcohol	4.54	1039	1.03	11.65	1814	1.17
(*E*)-β-Ocimene	4.69	1049	0.02	3.94	1219	0.01
Acetophenone	4.88	1061	0.01	8.85	1582	0.03
Benzyl formate	5.10	1075	0.02	9.38	1624	0.02
ortho-Guaiacol	5.31	1088	0.02	11.42	1794	0.02
Methyl benzoate	5.35	1091	0.01	8.60	1562	0.01
Benzyl acetate	6.48	1163	0.01	9.97	1672	0.01
Ethyl benzoate	6.54	1168	0.03	9.15	1605	0.03
Terpinen-4-ol	6.63	1173	0.01	8.50	1555	0.01
α-Terpineol	6.87	1188	0.01	9.71	1650	0.01
Benzoic acid	7.50	1230	5.77	17.06*	2345	5.56
4-Ethylguaiacol	8.20	1277	0.01	13.30	1964	0.01
4-Vinylguaiacol	8.71	1312	0.15	14.94	2122	0.17
Unknown [m/z 105, 77 (59), 122 (29), 51 (18), 106 (8), 50 (8)...]	8.95	1329	0.03			
Eugenol	9.33	1356	0.03	14.68	2096	0.02
Dihydroeugenol	9.52	1369	0.01	14.12	2042	0.01
Methyl (*E*)-cinnamate	9.66	1379	0.02	13.73*	2004	4.64
Vanillin	9.94	1398	1.06	18.16*	2468	1.09
Coumarin	10.33	1428	0.03	16.97	2335	0.04
γ-Muurolene	10.98*	1476	5.69	9.48	1632	0.06
(*E*)-Cinnamic acid	10.98*	1476	[5.69]	20.66	2768	4.84
Ethyl (*E*)-cinnamate	10.98*	1476	[5.69]	14.28	2058	0.04
(*E*)-Isoeugenol	10.98*	1476	[5.69]	16.38†	2271	0.07
Acetovanillone	11.09	1484	0.03	19.01*	2567	0.33
α-Selinene	11.21	1493	0.03	9.94	1669	0.01
Unknown [m/z 151, 166 (47), 77 (35), 147 (35), 105 (25), 148 (24)...]	11.23	1495	0.02			
Unknown [m/z 93, 105 (98), 147 (85), 77 (75), 148 (58), 122 (55)...]	11.37	1505	0.02			
β-Bisabolene	11.40	1507	0.03	10.09	1682	0.03
(3*E*,6*E*)-α-Farnesene	11.43	1510	0.01	10.44	1711	0.04
Guaiacylacetone	11.67	1529	0.32	19.01*	2567	[0.33]
(*E*)-α-Bisabolene	11.81	1540	0.02	10.66	1729	0.02

Unknown [m/z 109, 69 (74), 43 (55), 41 (30), 93 (28), 55 (23)...]	12.05	1558	0.08	12.97	1933	0.07
(*E*)-Nerolidol	12.14	1566	4.58	13.73*	2004	[4.64]
Unknown [m/z 109, 69 (75), 43 (55), 41 (29), 93 (28), 55 (26), 71 (22)...]	12.24	1574	0.08	13.24	1958	0.08
Butyrovanillone?	12.55	1598	0.02			
Methoxyeugenol	12.60	1602	0.02	18.16*	2468	[1.09]
α-Cadinol	13.15	1648	0.01	15.36	2165	0.01
Syringaldehyde	13.35	1664	0.03			
(*E*)-Stilbene?	13.71	1694	0.01	17.06*	2345	[5.56]
(2*E*,6*Z*)-Farnesol	13.75	1697	0.01	16.41†	2275	[0.07]
Unknown [m/z 137, 122 (30), 105 (22), 196 (19), 77 (17)...]	13.93	1712	0.01			
Unknown [m/z 194, 115 (73), 193 (59), 179 (42), 116 (41), 91 (38)...]	14.06	1724	0.01	17.06*	2345	[5.56]
(*E*)-Coniferaldehyde	14.21	1736	0.01	22.78	3049	0.05
Benzyl benzoate	14.58	1768	54.94	18.83*	2545	55.69
Benzyl hydrocinnamate	16.24	1919	0.07	20.44	2740	0.11
Benzyl (*Z*)-cinnamate	16.44	1938	0.73	21.14	2830	0.74
Geranyl benzoate	16.63	1956	0.03	18.83*	2545	[55.69]
Benzyl (*E*)-cinnamate	17.99	2090	23.21	22.94	3071	23.40
(*E*)-Cinnamyl (*E*)-cinnamate	20.83	2394	0.04	26.22	3561	0.04
Benzyl (*E*)-ferulate	22.25	2562	0.09			
Benzyl α-linolenate	23.72	2745	0.03			
Total identified		**98.28%**			**98.41%**	
Total reported		**98.53%**			**98.56%**	

*: 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

Note: no correction factor was applied
R.T.: Retention time (minutes)
R.I.: Retention index