Date : November 6, 2020

Certificate of Analysis – GC Profiling

Sample identification

Internal code : 20E08-PTH08
Customer identification : Green Tea co2 MT - Germany - GF110098R
Type : CO2 extract
Source : *Camellia sinensis*
Customer : Plant Therapy

Analysis

Method: Dilution of a known amount with an appropriate solvent, and addition of a methyl octanoate internal standard for quantitation. Application of a correction factor[1]. Analysis with PC-PA-014 - Analysis of the composition of an essential oil, or other volatile liquid, by FAST GC-FID (in French); identifications validated by GC-MS.
Analyst : Sylvain Mercier, M. Sc., Chimiste
Analysis date : May 11, 2020

Checked and approved by :

Alexis St-Gelais, M. Sc., 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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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.

This report is an update of the first version issued on May 12, 2020, to correct batch number.

Reference

(1) Cachet, T.; Brevard, H.; Chaintreau, A.; Demyttenaere, J.; French, L.; Gassenmeier, K.; Joulain, D.; Koenig, T.; Leijs, H.; Liddle, P.; et al. IOFI Recommended Practice for the Use of Predicted Relative-Response Factors for the Rapid Quantification of Volatile Flavouring *Compounds by GC-FID. Flavour Fragr. J. 2016, 31 (3), 191–194.*

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PHYSICOCHEMICAL DATA

Physical aspect: Bright yellow liquid
Refractive index: 1.3678 ± 0.0003 (20 °C; method PC-MAT-016)

CONCLUSION

No contaminant has been detected using this method.

This tea extract contains 6.2 mg/g of caffeine.

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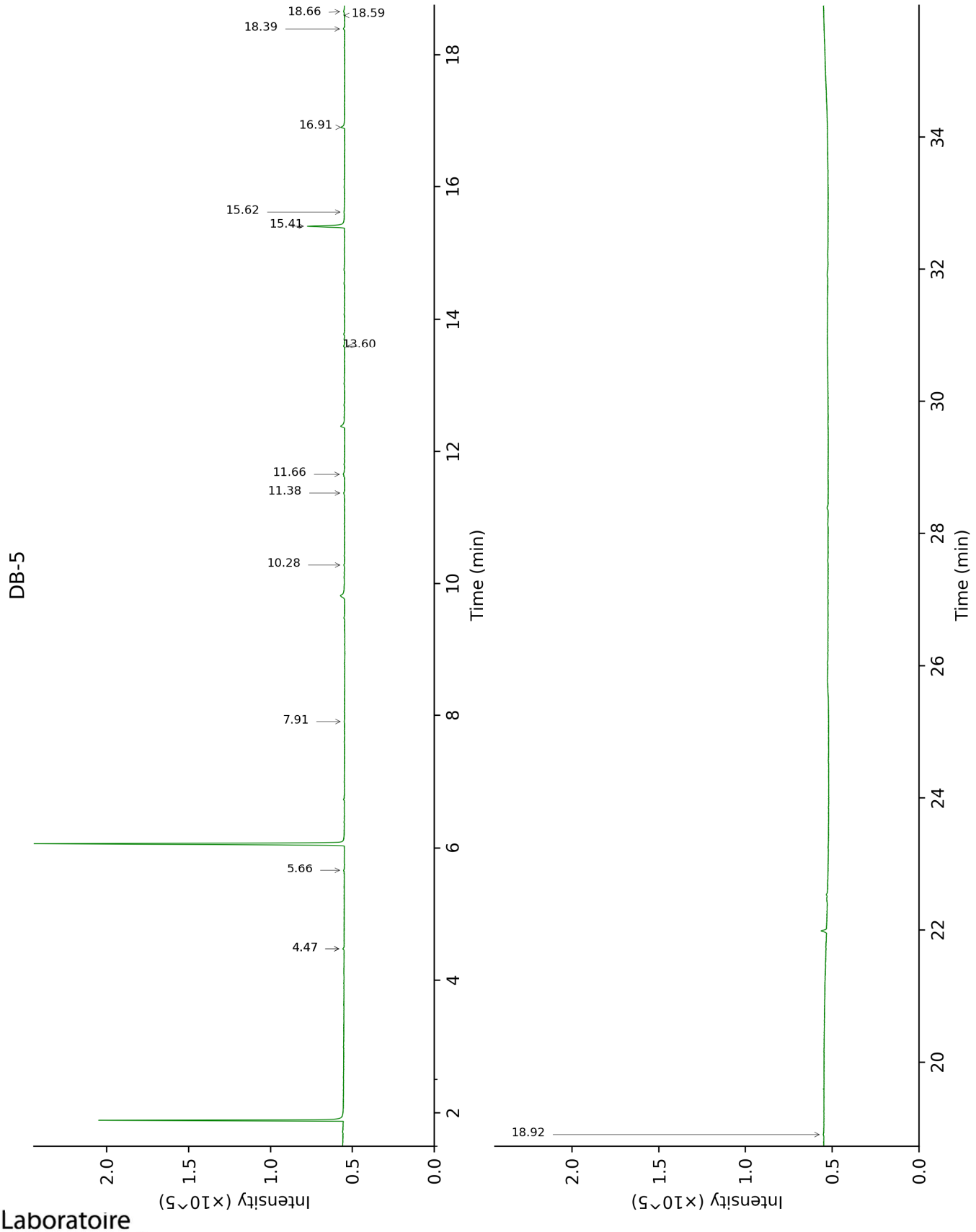
ANALYSIS SUMMARY

Identification	(mg/g)	% of total volatiles	Classe
1,8-Cineole	0.08	0.53	Monoterpenic ether
Limonene	0.09	0.57	Monoterpene
Linalool	0.11	0.74	Monoterpenic alcohol
Ethylmethylmaleimide?	0.13	0.88	Pyrrole
Unknown	0.13	0.83	Unknown
(*E*)-β-Ionone	0.15	0.98	Ionone or analog
Dihydroactinidiolide?	0.27	1.75	Aliphatic lactone
Unknown	0.18	1.20	Unknown
Caffeine	6.16	40.34	Alkaloid
Phytone	0.04	0.27	Terpenic ketone
Palmitic acid	0.47	3.08	Aliphatic acid
Phytol	0.11	0.72	Diterpenic alcohol
Linoleic acid	0.06	0.42	Aliphatic acid
Oleic acid	0.15	0.99	Aliphatic acid
Stearic acid	0.10	0.68	Aliphatic acid
Penten-3-ol	0.08	0.55	Aliphatic alcohol
Propionic acid	0.22	1.44	Aliphatic acid
Geranylacetone	0.08	0.51	Monoterpenic ketone
Caproic acid	0.21	1.37	Aliphatic acid
Benzyl alcohol	0.12	0.79	Simple phenolic
Consolidated total	**8.95 mg/g**	**58.62%**	

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: 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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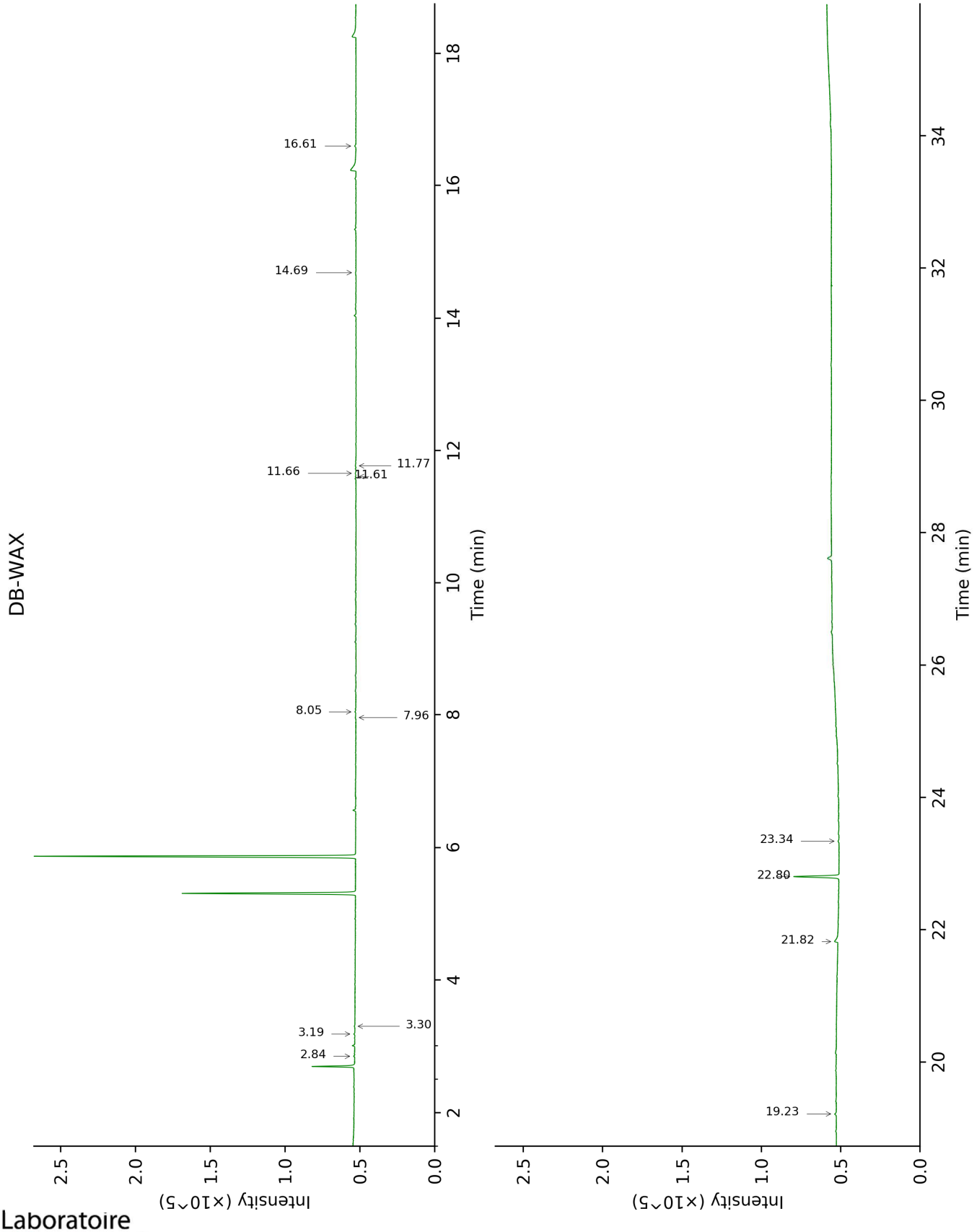
DB-WAX
16.61
14.69
11.66
11.61
11.77
8.05
7.96
3.19
3.30
2.84
23.34
22.80
21.82
19.23
Time (min)
Intensity (×10^5)

FULL ANALYSIS DATA

Identification	Column DB-5			Column DB-WAX		
	R.T	R.I	mg/g	R.T	R.I	mg/g
1,8-Cineole	4.48*	1026	0.18	3.30	1168	0.08
Limonene	4.48*	1026	[0.16]	3.19	1159	0.09
Linalool	5.66	1100	0.11	8.05	1515	0.13
Ethylmethylmaleimide?	7.91	1249	0.13			
Unknown [m/z 112, 113 (29), 84 (22), 41 (10), 57 (9), 68 (8), 58 (8)...]	10.28	1411	0.13			
(*E*)-β-Ionone	11.38	1492	0.15			
Dihydroactinidiolide?	11.66	1514	0.27			
Unknown [m/z 111, 43 (91), 178 (51), 140 (37), 57 (32), 163 (31)...]	13.60	1670	0.18	16.60	2282	0.19
Caffeine	15.41	1826	6.16	22.80	3018	6.66
Phytone	15.62	1846	0.04	14.69	2088	0.07
Palmitic acid	16.91	1966	0.47	21.82	2890	0.59
Phytol	18.39	2112	0.11	19.23	2572	0.16
Linoleic acid	18.59	2133	0.06			
Oleic acid	18.66	2140	0.15			
Stearic acid	18.92	2167	0.10	23.34	3092	0.12
Penten-3-ol				2.84	1132	0.08
Propionic acid				7.96	1508	0.22
Geranylacetone				11.61	1804	0.08
Caproic acid				11.66	1809	0.21
Benzyl alcohol				11.77	1819	0.12

*: Two or more compounds are coeluting on this column

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

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.

R.T.: Retention time (minutes)

R.I.: Retention index

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