Date : July 09, 2019

Certificate of Analysis – GC Profiling

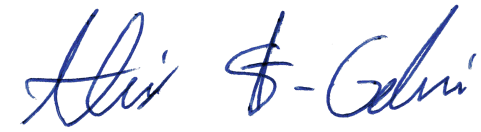
Sample identification

Internal code : 19G08-PTH01-1-SCC
Customer identification : Camphor - Taiwan - C3010494R
Type : Essential oil
Source : *Cinnamomum camphora* ct. White camphor
Customer : Plant Therapy

Analysis

Method: 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 : Lindsay Girard, B. Sc.
Analysis date : July 09, 2019

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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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

Laboratoire PhytoChemia
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PHYSICOCHEMICAL DATA

Physical aspect: Clear liquid
Refractive index: 1.4688 ± 0.0003 (20 °C)

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	%	Classe
Ethanol	0.01	Aliphatic alcohol
Toluene	tr	Simple phenolic
Hashishene	0.01	Monoterpene
Tricyclene	tr	Monoterpene
α-Thujene	0.22	Monoterpene
α-Pinene	10.27	Monoterpene
Camphene	0.58	Monoterpene
α-Fenchene	0.07	Monoterpene
Thuja-2,4(10)-diene	0.01	Monoterpene
Sabinene	3.30	Monoterpene
β-Pinene	1.80	Monoterpene
6-Methyl-5-hepten-2-one	0.09	Aliphatic ketone
Myrcene	3.04	Monoterpene
2-Carene	0.04	Monoterpene
α-Phellandrene	1.34	Monoterpene
Octanal	0.02	Aliphatic aldehyde
Δ3-Carene	0.05	Monoterpene
α-Terpinene	2.60	Monoterpene
para-Cymene	8.15	Monoterpene
Limonene	28.67	Monoterpene
1,8-Cineole	36.02*	Monoterpenic ether
β-Phellandrene	[36.02]*	Monoterpene
(*Z*)-β-Ocimene	0.23	Monoterpene
(*E*)-β-Ocimene	0.80	Monoterpene
γ-Terpinene	2.08	Monoterpene
cis-Sabinene hydrate	0.01	Monoterpenic alcohol
cis-Linalool oxide (fur.)	0.02	Monoterpenic alcohol
Fenchone	0.03	Aliphatic alcohol
Terpinolene	0.03	Monoterpene
Unknown	0.02	Unknown
Cryptone	0.06	Normonoterpenic ketone
Unknown	0.01	Unknown
trans-Ascaridole glycol	0.01	Monoterpenic alcohol
Unknown	0.01	Unknown
β-Caryophyllene	0.01	Sesquiterpene
β-Selinene	0.01	Sesquiterpene
Humulene epoxide II	0.01	Sesquiterpenic ether
Unknown	0.02	Sesquiterpene
Neointermedeol	0.06	Sesquiterpenic alcohol
meta-Camphorene	0.02	Diterpene
Consolidated total	**99.71%**	

*: Individual compounds concentration could not be found due to overlapping coelutions on columns considered
[xx]: Duplicate percentage due to coelutions, not taken into account in the consolidated total
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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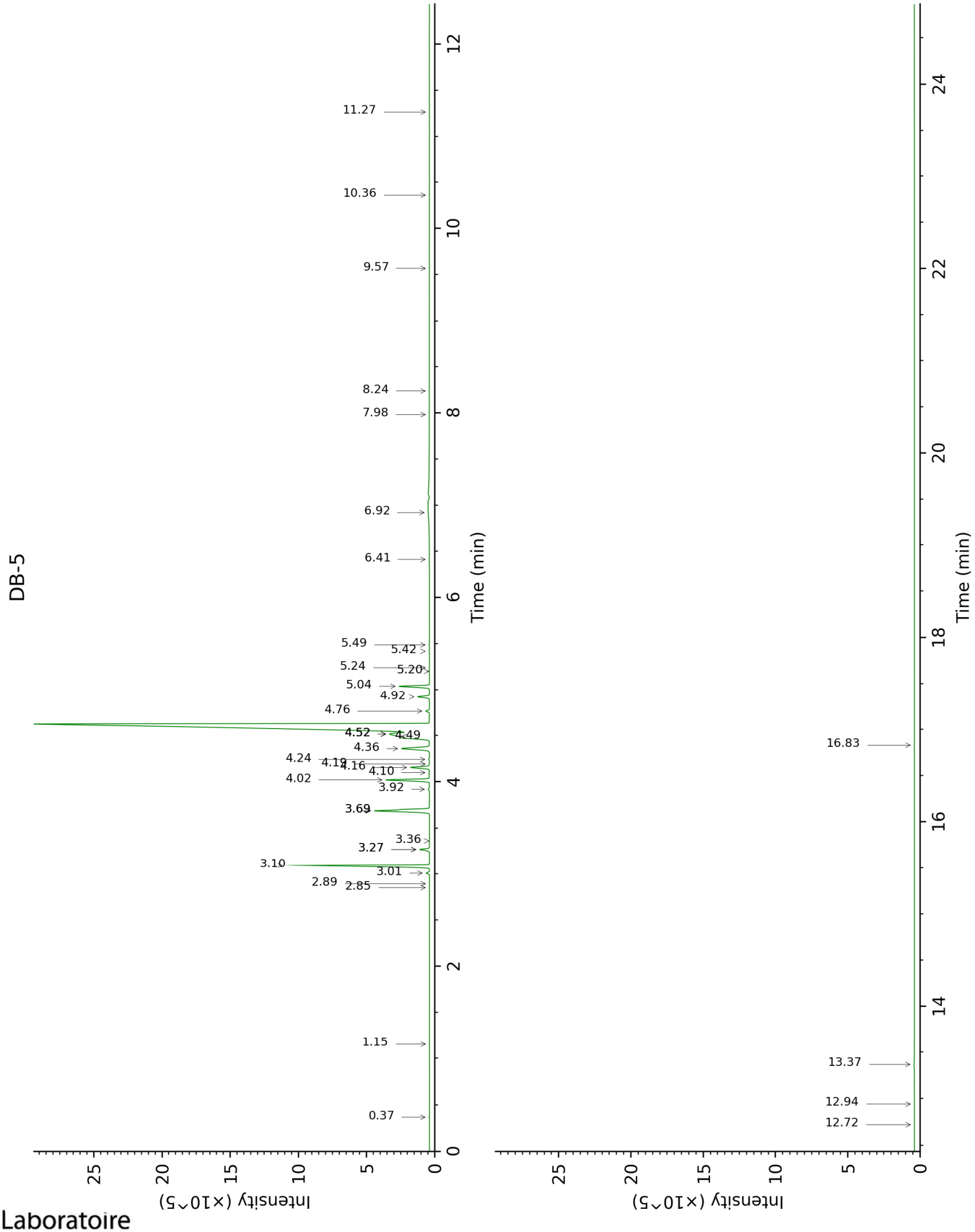
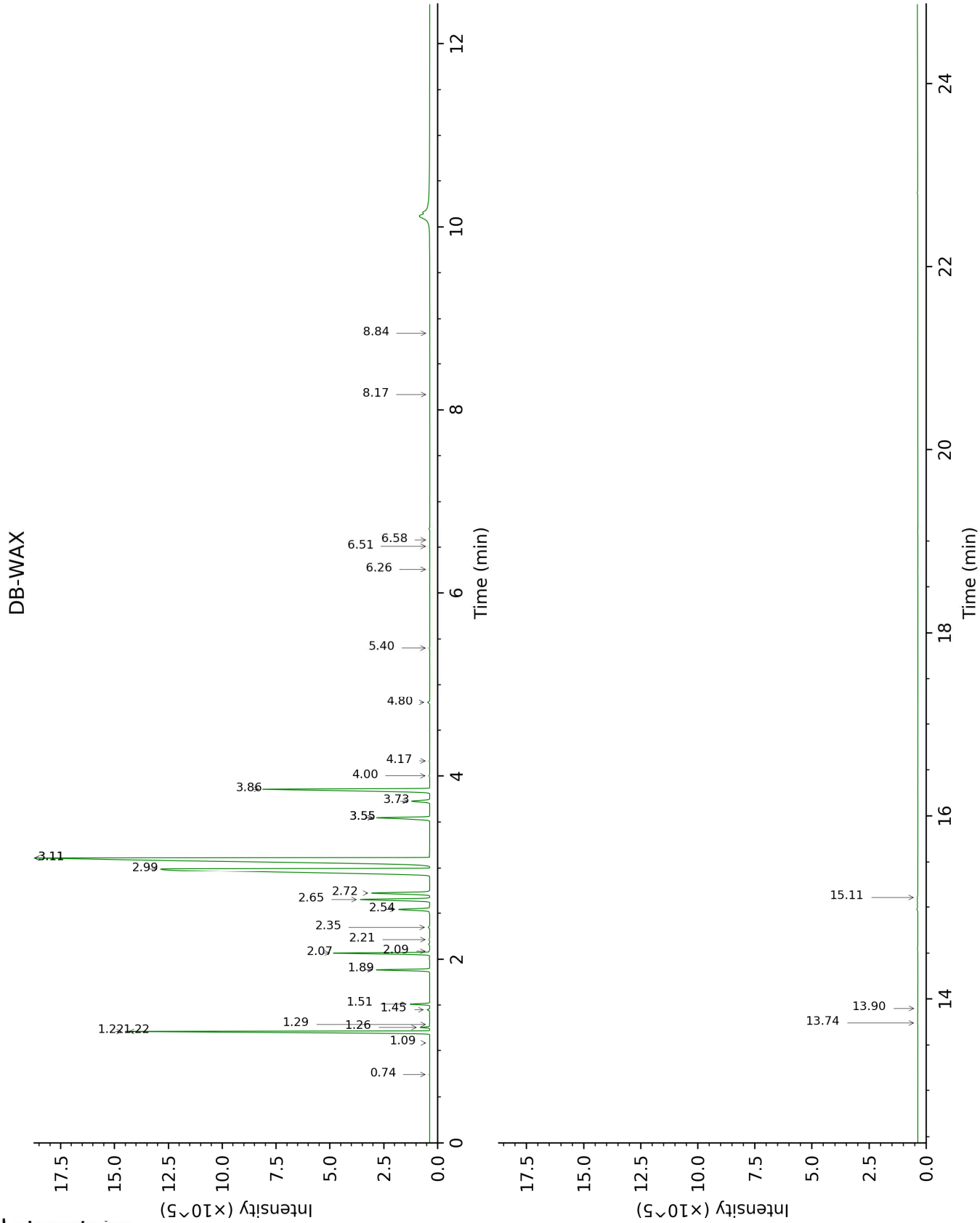
628 Boulevard du Saguenay, Saguenay (Qc) G7J 1H4 | www.phytochemia.com


DB-5
11.27
10.36
9.57
8.24
7.98
6.92
6.41
5.49
5.42
5.24
5.20
5.04
4.92
4.76
4.52
4.49
4.36
4.24
4.19
4.16
4.10
4.02
3.92
3.69
3.36
3.27
3.10
3.01
2.89
2.85
1.15
0.37
Time (min)
Intensity (×10^5)
16.83
13.37
12.94
12.72
Time (min)
Intensity (×10^5)


DB-WAX
Time (min)
Intensity (×10^5)
8.84
8.17
6.58
6.51
6.26
5.40
4.80
4.17
4.00
3.86
3.73
3.55
3.11
2.99
2.72
2.65
2.54
2.35
2.21
2.09
2.07
1.89
1.51
1.45
1.29
1.26
1.22
1.09
0.74
15.11
13.90
13.74

FULL ANALYSIS DATA

Identification	Column DB-5			Column DB-WAX		
	R.T	R.I	%	R.T	R.I	%
Ethanol	0.37	517	0.01	0.74	906	0.01
Toluene	1.15	760	tr	1.29	1003	0.01
Hashishene	2.85	915	0.01	1.22*	994	10.32
Tricyclene	2.89	918	tr	1.09	971	tr
α-Thujene	3.01	925	0.22	1.26	1000	0.22
α-Pinene	3.10	931	10.27	1.22*	994	[10.32]
Camphene	3.27*	942	0.66	1.51	1026	0.58
α-Fenchene	3.27*	942	[0.66]	1.45	1020	0.07
Thuja-2,4(10)-diene	3.36	948	0.01	2.09	1087	0.02
Sabinene	3.69*	970	5.09	2.07	1085	3.30
β-Pinene	3.69*	970	[5.09]	1.89	1066	1.80
6-Methyl-5-hepten-2-one	3.92	985	0.09	4.80	1300	0.08
Myrcene	4.02	992	3.04	2.65	1135	3.04
2-Carene	4.10	997	0.04	2.22	1100	0.03
α-Phellandrene	4.16	1001	1.34	2.54	1126	1.32
Octanal	4.19	1003	0.02	4.17	1254	0.02
Δ3-Carene	4.24	1006	0.05	2.35	1111	0.05
α-Terpinene	4.36	1014	2.60	2.72	1141	2.59
para-Cymene	4.49†	1022	72.84	3.86	1230	8.15
Limonene	4.52*†	1024	[72.84]	2.99	1163	28.67
1,8-Cineole	4.52*†	1024	[72.84]	3.11*	1172	35.30
β-Phellandrene	4.52*†	1024	[72.84]	3.11*	1172	[35.30]
(*Z*)-β-Ocimene	4.76	1039	0.23	3.55*	1207	2.31
(*E*)-β-Ocimene	4.92	1049	0.80	3.73	1221	0.79
γ-Terpinene	5.04	1057	2.08	3.55*	1207	[2.31]
cis-Sabinene hydrate	5.20	1067	0.01	6.58	1428	0.01
cis-Linalool oxide (fur.)	5.24	1069	0.02	6.26	1404	0.02
Fenchone	5.42	1081	0.03	5.40	1343	0.03
Terpinolene	5.49	1085	0.03	4.00	1242	0.03
Unknown [m/z 109, 124 (45), 119 (41), 43 (35), 91 (28), 95 (25)...]	6.41	1145	0.02	6.51	1423	0.02
Cryptone	6.92	1178	0.06	8.84	1601	0.01
Unknown [m/z 43, 97 (69), 107 (46), 41 (28), 55 (21), 109 (20)...]	7.98	1250	0.01			
trans-Ascaridole glycol	8.24	1268	0.01	13.90	2044	0.01
Unknown [m/z 43, 95 (62), 107 (45), 110 (41), 55	9.57	1356	0.01	13.74	2029	0.02

(28), 67 (25)...]						
β-Caryophyllene	10.36	1412	0.01	8.17	1549	0.01
β-Selinene	11.27	1480	0.01			
Humulene epoxide II	12.72	1593	0.01			
Unknown [m/z 110, 109 (94), 43 (92), 81 (58), 95 (52), 97 (34)...204 (2)]	12.94	1611	0.02			
Neointermedeol	13.37	1646	0.06			
meta-Camphorene	16.83	1952	0.02	15.11	2163	0.04
Total identified		**99.66%**			**98.82%**	
Total reported		**99.71%**			**98.86%**	

*: 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