

Date : June 14, 2023

CERTIFICATE OF ANALYSIS – GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 23F13-NPA01


Customer identification : Eucalyptus globulus - China - NPS00076 - Lot # NP0154

Type : Essential oil

Source : *Eucalyptus globulus*

Customer : Nature Packaged


ANALYSIS

Method: PC-MAT-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 : Amélie Simard, Analyste

Analysis date : June 14, 2023

Checked and approved by :



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

Notes: 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 from the first version issued on June 14, 2023, to format it for online publication.

PHYSICOCHEMICAL DATA

Physical aspect: Clear liquid

Refractive index: 1.4607 ± 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
Hashishene	0.01	Monoterpene
α -Thujene	0.02	Monoterpene
α -Pinene	3.31	Monoterpene
Camphene	0.02	Monoterpene
α -Fenchene	0.01	Monoterpene
β -Pinene	0.14	Monoterpene
Sabinene	0.02	Monoterpene
Myrcene	0.25	Monoterpene
α -Phellandrene	0.33	Monoterpene
Δ^3 -Carene	0.01	Monoterpene
α -Terpinene	0.74	Monoterpene
para-Cymene	3.07	Monoterpene
Limonene	8.60	Monoterpene
1,8-Cineole	80.75	Monoterpenic ether
(Z)- β -Ocimene	0.05	Monoterpene
(E)- β -Ocimene	0.05	Monoterpene
γ -Terpinene	2.21	Monoterpene
cis-Sabinene hydrate	0.02	Monoterpenic alcohol
Unknown	0.01	Oxygenated monoterpene
cis-Linalool oxide (fur.)	0.01	Monoterpenic alcohol
Terpinolene	0.02	Monoterpene
meta-Mentha-4,6-dien-8-ol	0.03	Monoterpenic alcohol
Cryptone	0.01	Normonoterpenic ketone
α -Terpineol	0.01	Monoterpenic alcohol
exo-2-Hydroxycineole	0.01	Monoterpenic alcohol
Unknown	0.01	Unknown
Unknown	0.01	Unknown
α -Humulene	tr	Sesquiterpene
trans-Pinocarveol	0.01	Monoterpenic alcohol
Consolidated total	99.73%	

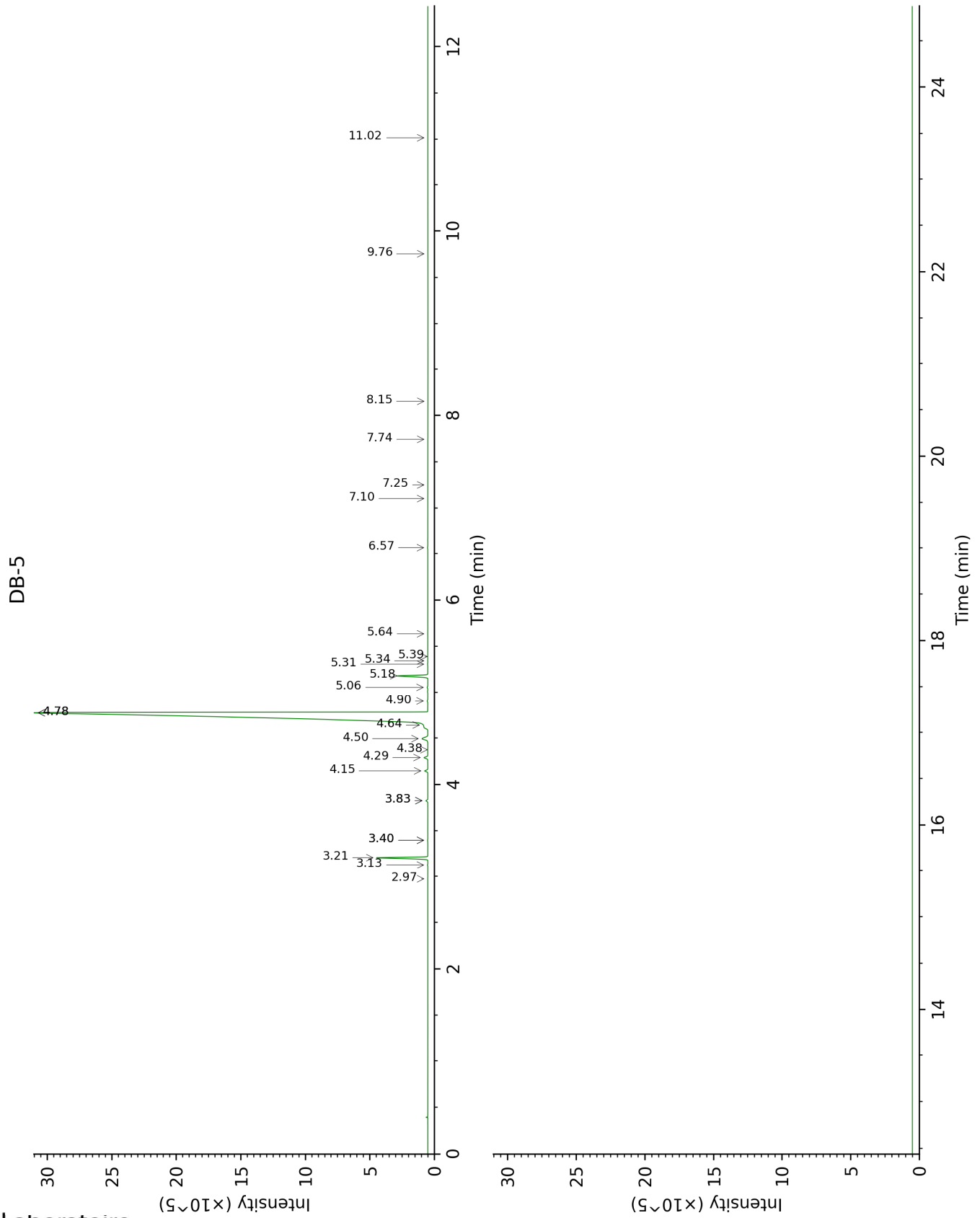
tr: The compound has been detected below 0.005% of total signal.

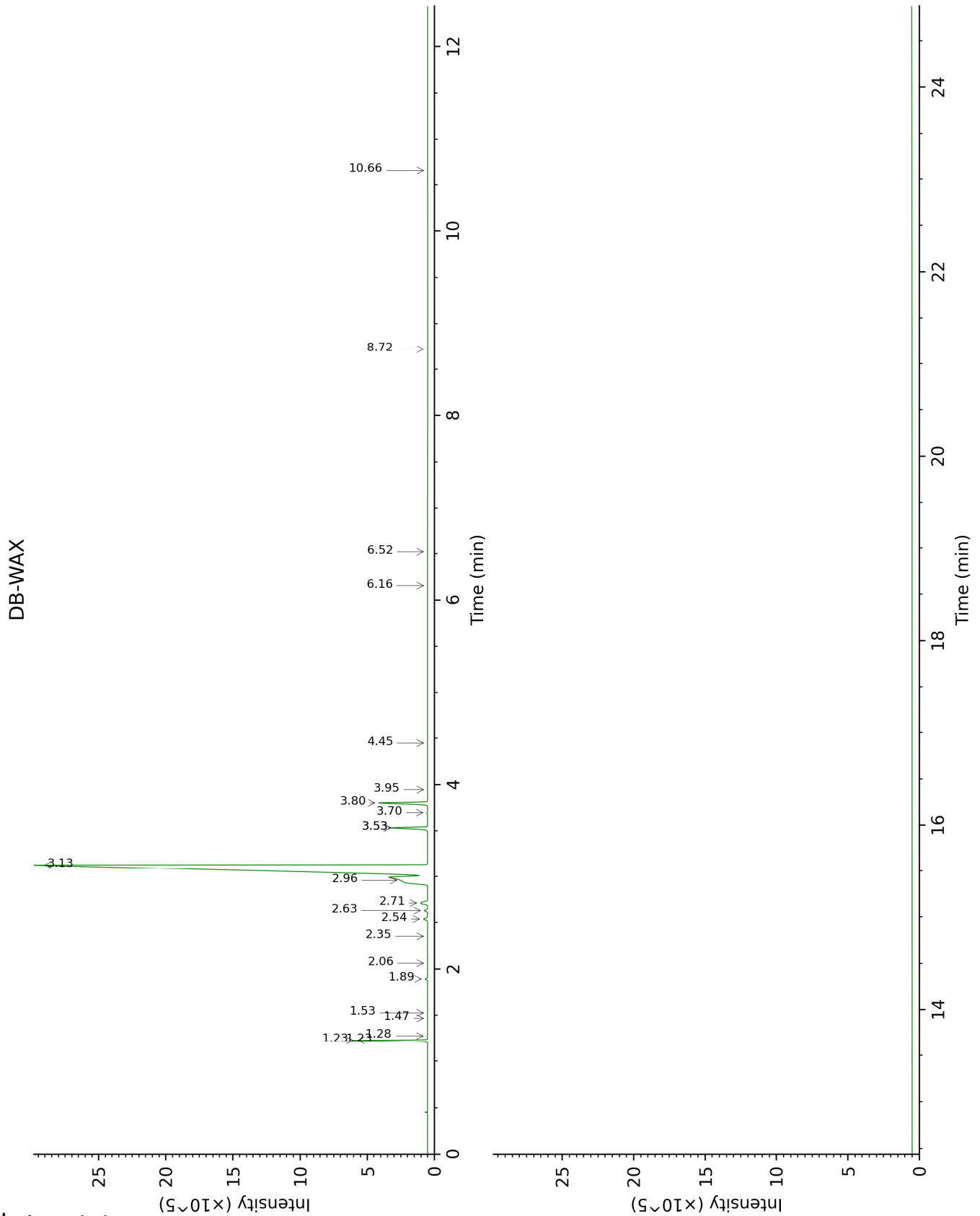
Note: no correction factor was applied

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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FULL ANALYSIS DATA

Identification	Column DB-5			Column DB-WAX		
	R.T	R.I	%	R.T	R.I	%
Hashishene	2.97	916	0.01	1.23*	993	3.32
α -Thujene	3.13	926	0.02	1.28	1002	0.02
α -Pinene	3.21	931	3.31	1.23*	993	[3.32]
Camphene	3.40*	944	0.02	1.53	1029	0.02
α -Fenchene	3.40*	944	[0.02]	1.47	1022	0.01
β -Pinene	3.83*	972	0.14	1.89	1066	0.14
Sabinene	3.83*	972	[0.14]	2.06	1084	0.02
Myrcene	4.15	993	0.25	2.63	1135	0.26
α -Phellandrene	4.29	1002	0.33	2.54	1127	0.32
Δ 3-Carene	4.38	1008	0.01	2.36	1112	0.02
α -Terpinene	4.50	1015	0.74	2.71	1142	0.76
para-Cymene	4.64†	1024	92.64	3.80	1230	3.07
Limonene	4.78*†	1032	[92.64]	2.96	1162	8.60
1,8-Cineole	4.78*†	1032	[92.64]	3.13	1176	80.75
(Z)- β -Ocimene	4.90	1041	0.05	3.53*	1209	2.28
(E)- β -Ocimene	5.06	1050	0.05	3.70	1222	0.05
γ -Terpinene	5.18	1058	2.21	3.53*	1209	[2.28]
cis-Sabinene hydrate	5.31	1066	0.02	6.52	1427	0.02
Unknown [m/z 79, 93 (60), 43 (40), 94 (35), 137 (33), 77 (26), 91 (20), 152 (18)]	5.34	1068	0.01	4.45	1280	0.01
cis-Linalool oxide (fur.)	5.39	1071	0.01	6.16	1400	0.01
Terpinolene	5.64	1086	0.02	3.95	1241	0.01
meta-Mentha-4,6-dien-8-ol	6.57	1145	0.03			
Cryptone	7.10	1179	0.01			
α -Terpineol	7.25	1189	0.01			
exo-2-Hydroxycineole	7.74	1221	0.01			
Unknown [m/z 43, 97 (69), 107 (46), 41 (28), 55 (21), 109 (20)...]	8.16	1248	0.01	10.66	1759	0.01
Unknown [m/z 43, 95 (62), 107 (45), 110 (41), 55 (28), 67 (25)...]	9.76	1358	0.01			
α -Humulene	11.02	1449	tr			
trans-Pinocarveol				8.72	1597	0.01
Total identified		99.88%			99.70%	

Total reported	99.92%	99.72%
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*: 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