CERTIFICATE OF ANALYSIS – GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 22A26-PTH01
Customer identification : Eucalyptus Globulus organic - China - E30115211R
Type : Essential oil
Source : *Eucalyptus globulus*
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 : February 08, 2022

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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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

MÉTHODE CERTIFIÉE
✳ISO 17025:2017
CERTIFIED METHOD

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PHYSICOCHEMICAL DATA

Physical aspect: Clear Liquid
Refractive index: 1.4604 ± 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.

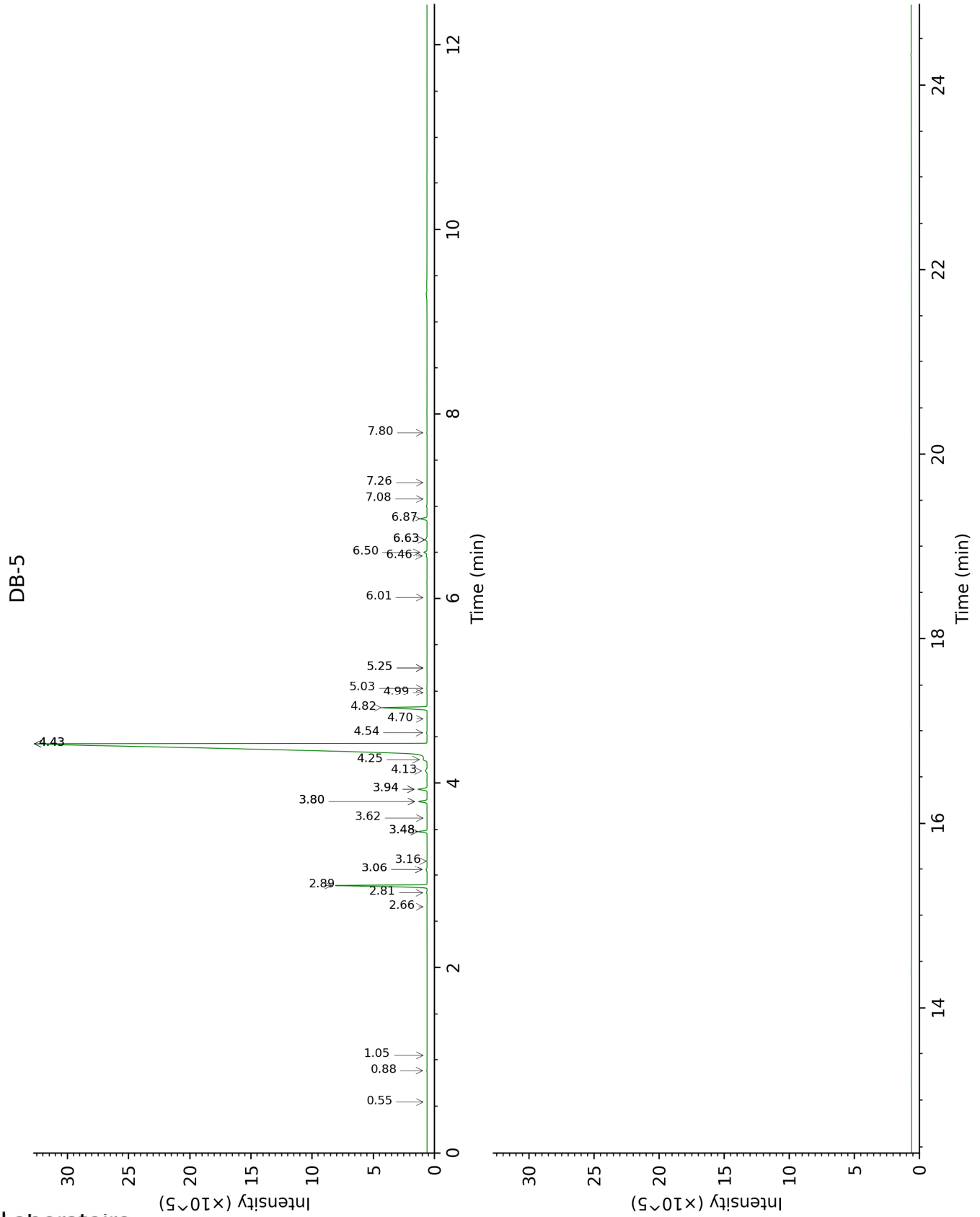| Identification	%	Class
Isovaleral	tr	Aliphatic aldehyde
Isoamyl alcohol	0.02	Aliphatic alcohol
Toluene	tr	Simple phenolic
Hashishene	0.01	Monoterpene
α-Thujene	0.03	Monoterpene
α-Pinene	5.94	Monoterpene
Camphene	0.07	Monoterpene
α-Fenchene	0.02	Monoterpene
Thuja-2,4(10)-diene	0.02	Monoterpene
Sabinene	tr	Monoterpene
β-Pinene	0.55	Monoterpene
Octen-3-ol	tr	Aliphatic alcohol
trans-Dehydroxylinalool oxide	0.02	Monoterpenic ether
Myrcene	0.60	Monoterpene
Pseudolimonene	0.02	Monoterpene
α-Phellandrene	0.66	Monoterpene
α-Terpinene	0.18	Monoterpene
para-Cymene	2.15	Monoterpene
Limonene	4.47	Monoterpene
1,8-Cineole	80.62	Monoterpenic ether
(*Z*)-β-Ocimene	0.04	Monoterpene
(*E*)-β-Ocimene	0.01	Monoterpene
γ-Terpinene	3.22	Monoterpene
Unknown	0.01	Oxygenated monoterpene
cis-Linalool oxide (fur.)	0.02	Monoterpenic alcohol
Terpinolene	0.01	Monoterpene
para-Cymenene	0.01	Monoterpene
trans-Pinocarveol	0.01	Monoterpenic alcohol
Borneol	0.07	Monoterpenic alcohol
δ-Terpineol	0.23	Monoterpenic alcohol
Terpinen-4-ol	0.11	Monoterpenic alcohol
Unknown	0.06	Oxygenated monoterpene
α-Terpineol	0.49	Monoterpenic alcohol
Verbenone	0.01	Monoterpenic ketone
Unknown	0.01	Oxygenated monoterpene
Unknown	0.02	Unknown
Aromadendrene	tr	Sesquiterpene
Consolidated total	**99.73%**	

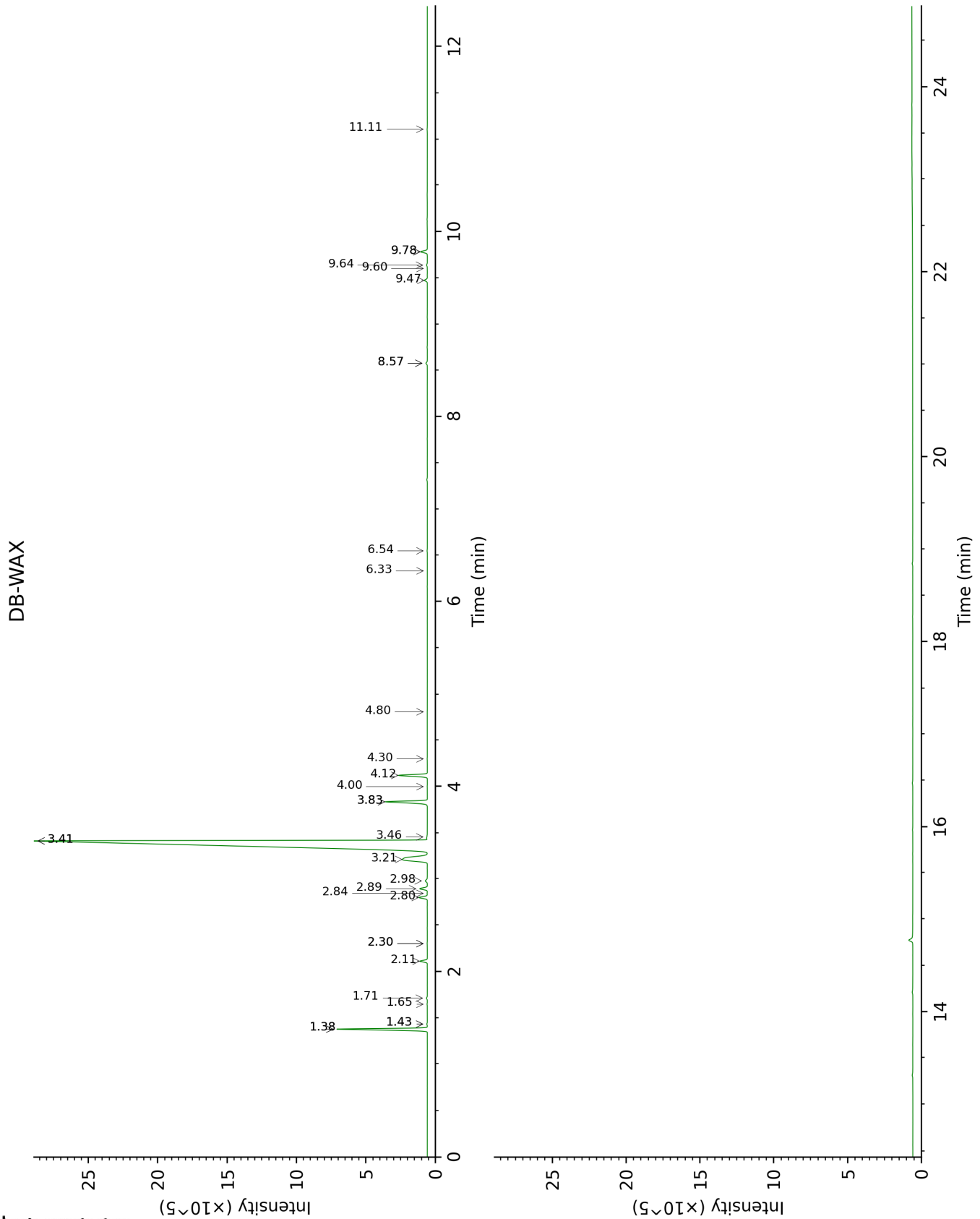tr: The compound has been detected below 0.005% of total signal.

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.

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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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This page was intentionally left blank. The following pages present the complete data of the analysis.

DB-5

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DB-WAX

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FULL ANALYSIS DATA

Identification	Column DB-5			Column DB-WAX		
	R.T	R.I	%	R.T	R.I	%
Isovaleral	0.55	640	tr			
Isoamyl alcohol	0.88	732	0.02	3.46	1178	0.02
Toluene	1.05	757	tr	1.43*	998	0.03
Hashishene	2.66	915	0.01	1.38*	991	5.92
α-Thujene	2.81	926	0.03	1.43*	998	[0.03]
α-Pinene	2.89	931	5.94	1.38*	991	[5.92]
Camphene	3.06*	943	0.08	1.71	1026	0.07
α-Fenchene	3.06*	943	[0.08]	1.65	1020	0.02
Thuja-2,4(10)-diene	3.16	949	0.02	2.30*	1084	0.02
Sabinene	3.48*	971	0.57	2.30*	1084	[0.02]
β-Pinene	3.48*	971	[0.57]	2.11	1065	0.55
Octen-3-ol	3.62	981	tr			
trans-Dehydroxylinalool oxide	3.80*	993	0.63	3.41*†	1174	80.67
Myrcene	3.80*	993	[0.63]	2.89	1133	0.60
Pseudolimonene	3.94*	1002	0.69	2.84	1129	0.02
α-Phellandrene	3.94*	1002	[0.69]	2.80	1126	0.66
α-Terpinene	4.13	1015	0.18	2.98	1140	0.19
para-Cymene	4.26†	1022	87.25	4.12	1228	2.15
Limonene	4.43*†	1033	[87.25]	3.21	1159	4.47
1,8-Cineole	4.43*†	1033	[87.25]	3.41*†	1174	[80.67]
(*Z*)-β-Ocimene	4.54	1041	0.04	3.84*	1207	3.30
(*E*)-β-Ocimene	4.70	1050	0.01	4.00	1219	0.01
γ-Terpinene	4.82	1058	3.22	3.84*	1207	[3.30]
Unknown [m/z 79, 93 (60), 43 (40), 94 (35), 137 (33), 77 (26), 91 (20), 152 (18)]	4.98	1069	0.01	4.80	1279	0.01
cis-Linalool oxide (fur.)	5.03	1072	0.02	6.54	1401	0.02
Terpinolene	5.25*	1086	0.02	4.30	1242	0.01
para-Cymenene	5.25*	1086	[0.02]	6.33	1385	0.01
trans-Pinocarveol	6.01	1134	0.01			
Borneol	6.46	1163	0.07	9.78*	1650	0.55
δ-Terpineol	6.50	1166	0.23	9.47	1625	0.23
Terpinen-4-ol	6.64*	1174	0.17	8.57*	1554	0.11
Unknown [m/z 69, 84 (62), 41 (30), 123 (26), 97 (24), 109 (23)...]	6.64*	1174	[0.17]	9.64	1638	0.06
α-Terpineol	6.87	1190	0.49	9.78*	1650	[0.55]
Verbenone	7.08	1203	0.01	9.60†	1636	0.01
Unknown [m/z 107, 79 (99), 91	7.26	1215	0.01			

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(57), 94 (54), 135 (44), 150 (44)]						
Unknown [m/z 43, 97 (69), 107 (46), 41 (28), 55 (21), 109 (20)...]	7.80	1251	0.02	11.11	1761	0.02
Aromadendrene				8.57*	1554	[0.11]
Total identified		**99.72%**			**99.63%**	
Total reported		**99.75%**			**99.72%**	

*: 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

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