



GC/MS BATCH NUMBER: E30111

ESSENTIAL OIL: EUCALYPTUS GLOBULUS ORGANIC

BOTANICAL NAME: EUCALYPTUS GLOBULUS

ORIGIN: INDIA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF EUCALYPTUS GLOBULUS ORGANIC OIL	%
1,8-CINEOLE	80.7
LIMONENE + β -PHELLANDRENE	8.6
p-CYMENE	4.9
α -PINENE	2.3
γ -TERPINENE	1.2

Comments from Robert Tisserand: Characteristic penetrating, green-medicinal odor quality. Meets seven of eight ISO standards for 70-75% rectified Eucalyptus globulus. The missing trace quantity of aromadendrene not a concern.

Date : August 07, 2018

CERTIFICATE OF ANALYSIS – GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 18H01-PTH5-1-CC

Customer identification : Eucalyptus Glob Org - India - E3011185R

Type : Essential oil

Source : *Eucalyptus globulus*

Customer : Plant Therapy

ANALYSIS

Method: PC-PA-014-17J19 - 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 : August 02, 2018

Checked and approved by :

Alexis St-Gelais, M. Sc., chimiste 2013-174

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This report is digitally signed, it is only considered valid if the digital signature is intact.

PHYSICOCHEMICAL DATA

Physical aspect: Clear liquid

Refractive index: 1.4605 ± 0.0003 (20 °C)

CONCLUSION

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

ANALYSIS SUMMARY

Identification	DB-5 (%)	DB-WAX (%)	Classe
Isoamyl alcohol	0.01	80.66*	Aliphatic alcohol
Hashishene	tr	2.29*	Monoterpene
α -Thujene	0.01	0.01	Monoterpene
α -Pinene	2.27	[2.29]*	Monoterpene
α -Fenchene	0.02*	0.01	Monoterpene
Camphene	[0.02]*	0.02	Monoterpene
Thuja-2,4(10)-diene	tr	tr	Monoterpene
β -Pinene	0.19	0.19	Monoterpene
Myrcene	0.46*	0.45	Monoterpene
<i>trans</i> -Dehydroxylinalool oxide	[0.46]*	[80.66]*	Monoterpenic ether
α -Phellandrene	0.79	0.78	Monoterpene
Δ^3 -Carene	0.03*	0.01	Monoterpene
<i>cis</i> -Dehydroxylinalool oxide	[0.03]*	1.20*	Monoterpenic ether
α -Terpinene	0.17	0.18	Monoterpene
para-Cymene	94.42*	4.90	Monoterpene
Limonene	[94.42]*	8.64*	Monoterpene
β -Phellandrene	[94.42]*	[8.64]*	Monoterpene
1,8-Cineole	[94.42]*	[80.66]*	Monoterpenic ether
(<i>Z</i>)- β -Ocimene	0.07	0.11	Monoterpene
(<i>E</i>)- β -Ocimene	0.06	0.06	Monoterpene
γ -Terpinene	1.16	[1.20]*	Monoterpene
Unknown	0.01	0.01	Oxygenated monoterpene
Terpinolene	0.01	0.01	Monoterpene
<i>trans</i> -Pinocarveol	0.01	0.01	Monoterpenic alcohol
Terpinen-4-ol	0.01	0.01*	Monoterpenic alcohol
α -Terpineol	0.01	0.02	Monoterpenic alcohol
Carvone	0.01	0.01	Monoterpenic ketone
Unknown	0.03	0.03	Unknown
Unknown	0.01	0.01	Unknown
Unknown	0.01		Sesquiterpene
β -Caryophyllene	0.01	0.01	Sesquiterpene
Aromadendrene	0.01	[0.01]*	Sesquiterpene
Total identified	99.73%	99.58%	

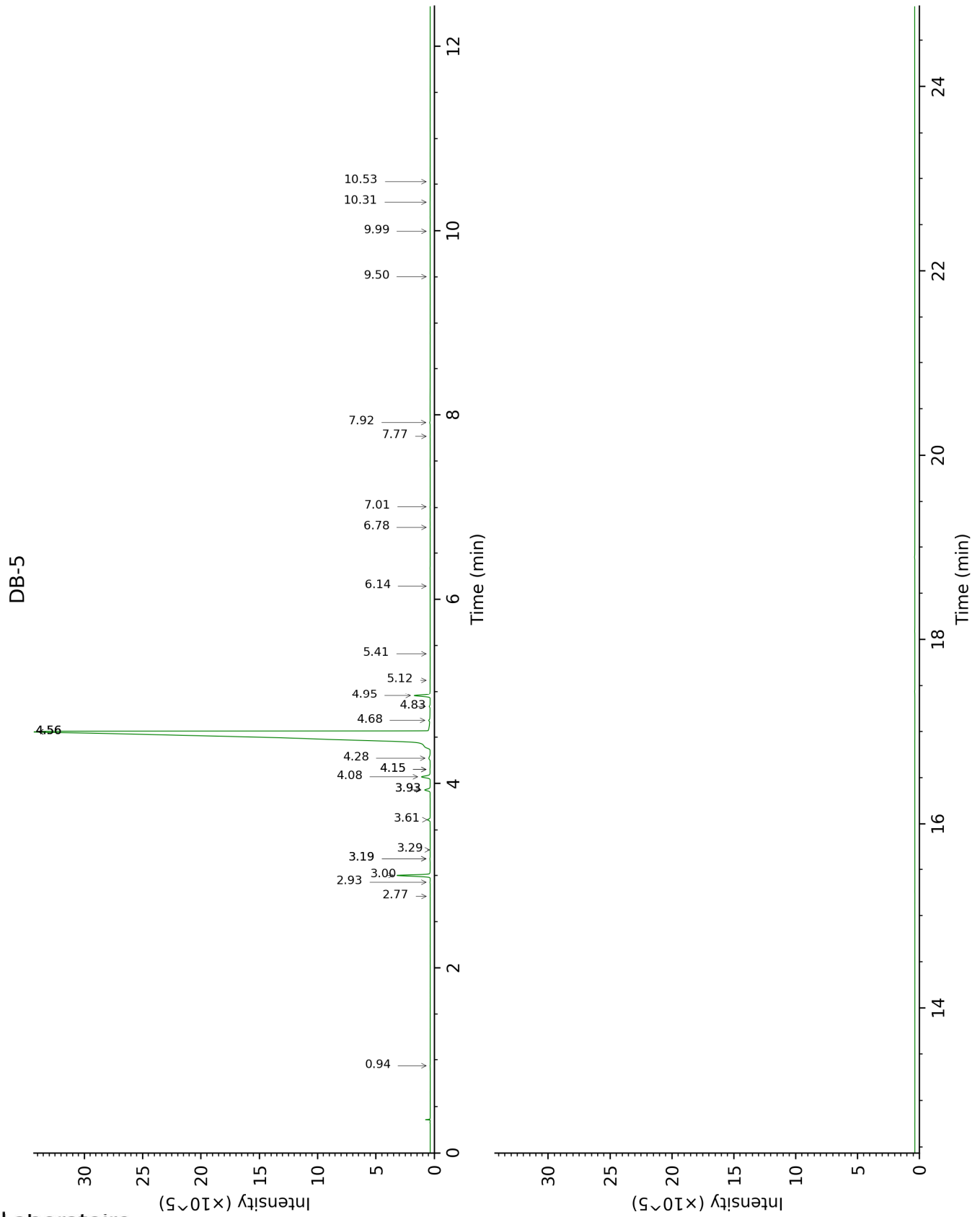
*: Two or more compounds are coeluting on this column

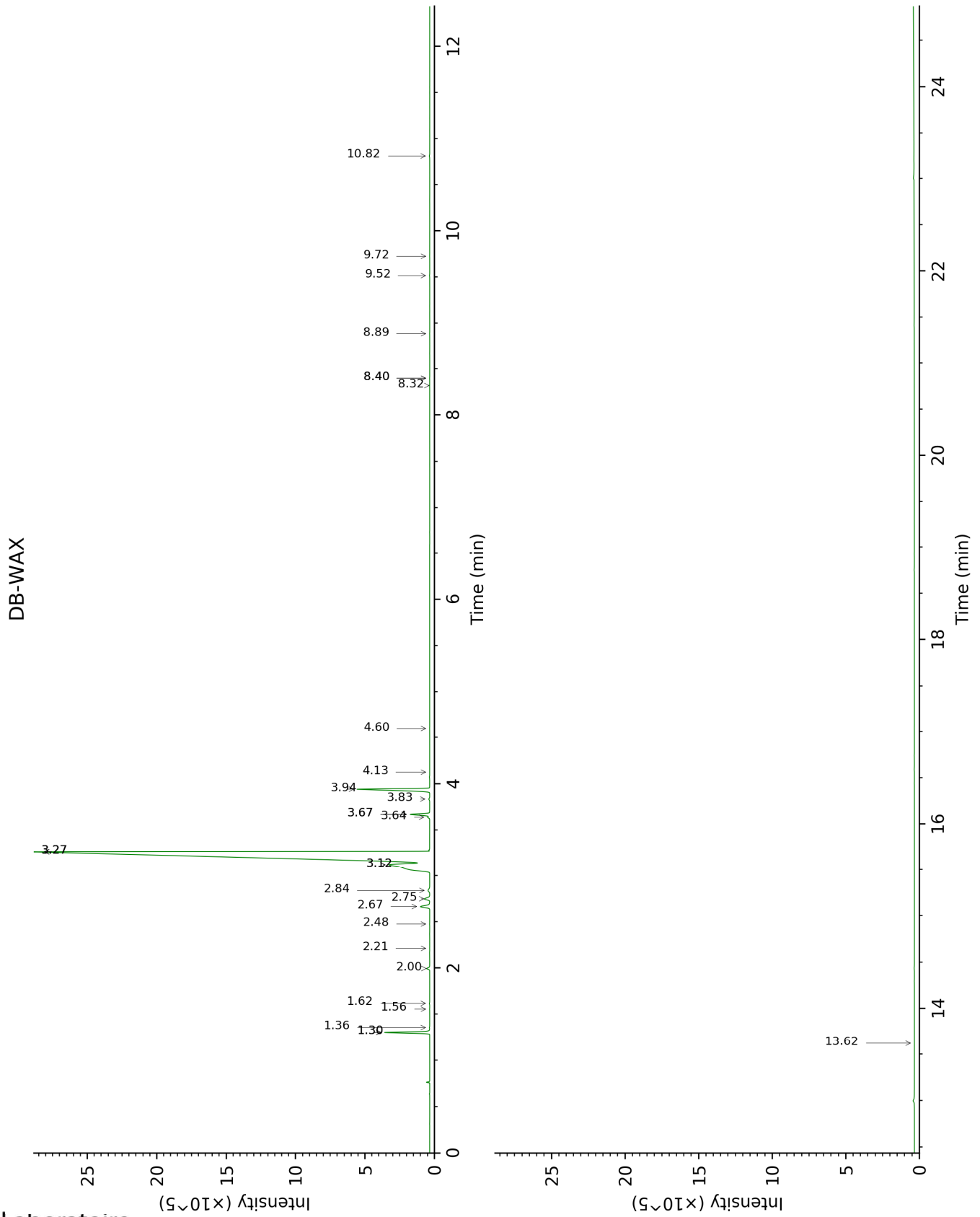
[xx]: Duplicate percentage due to coelutions, not taken account in the identified total

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

Note: no correction factor was applied

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FULL ANALYSIS DATA

Identification	Column DB-5			Column DB-WAX		
	R.T	R.I	%	R.T	R.I	%
Isoamyl alcohol	0.94	728	0.01	3.26*	1177	80.66
Hashishene	2.78	913	tr	1.30*	998	2.29
α -Thujene	2.93	923	0.01	1.36	1006	0.01
α -Pinene	3.00	928	2.27	1.30*	998	[2.29]
α -Fenchene	3.19*	941	0.02	1.56	1029	0.01
Camphene	3.19*	941	[0.02]	1.62	1035	0.02
Thuja-2,4(10)-diene	3.28	947	tr	2.21	1092	tr
β -Pinene	3.61	969	0.19	2.00	1071	0.19
Myrcene	3.93*	991	0.46	2.75	1137	0.45
<i>trans</i> -Dehydroxylinalool oxide	3.93*	991	[0.46]	3.26*	1177	[80.66]
α -Phellandrene	4.08	1001	0.79	2.67	1131	0.78
Δ^3 -Carene	4.15*	1006	0.03	2.48	1116	0.01
<i>cis</i> -Dehydroxylinalool oxide	4.15*	1006	[0.03]	3.67*	1208	1.20
α -Terpinene	4.28	1013	0.17	2.84	1144	0.18
para-Cymene	4.56*	1031	94.42	3.94	1228	4.90
Limonene	4.56*	1031	[94.42]	3.12*	1166	8.64
β -Phellandrene	4.56*	1031	[94.42]	3.12*	1166	[8.64]
1,8-Cineole	4.56*	1031	[94.42]	3.26*	1177	[80.66]
(Z)- β -Ocimene	4.68	1039	0.07	3.64	1206	0.11
(E)- β -Ocimene	4.84	1049	0.06	3.84	1220	0.06
γ -Terpinene	4.95	1056	1.16	3.67*	1208	[1.20]
Unknown [m/z 79, 93 (60), 43 (40), 94 (35), 137 (33), 77 (26), 91 (20), 152 (18)]	5.12	1067	0.01	4.60	1275	0.01
Terpinolene	5.41	1085	0.01	4.13	1241	0.01
<i>trans</i> -Pinocarveol	6.14	1132	0.01	8.89	1599	0.01
Terpinen-4-ol	6.78	1172	0.01	8.40*	1559	0.01
α -Terpineol	7.01	1187	0.01	9.52	1652	0.02
Carvone	7.77	1238	0.01	9.72	1669	0.01
Unknown [m/z 43, 97 (69), 107 (46), 41 (28), 55 (21), 109 (20)...]	7.92	1248	0.03	10.82	1763	0.03
Unknown [m/z 43, 95 (62), 107 (45), 110 (41), 55 (28), 67 (25)...]	9.50	1357	0.01	13.62	2021	0.01
Unknown [m/z 93, 122 (98), 161 (98), 107 (86), 95 (46), 105 (72)... 204	9.99	1391	0.01			

(34)]						
β -Caryophyllene	10.31	1414	0.01	8.32	1553	0.01
Aromadendrene	10.53	1431	0.01	8.40*	1559	[0.01]
Total identified		99.73%			99.58%	
Total reported		99.78%			99.63%	

*: Two or more compounds are coeluting on this column

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

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