GC/MS BATCH NUMBER: W20103

ESSENTIAL OIL: WINTERGREEN ORGANIC
BOTANICAL NAME: GAULTHERIA PROCUMBENS
ORIGIN: NEPAL

KEY CONSTITUENTS PRESENT IN THIS BATCH OF WINTERGREEN ORGANIC OIL	%
METHYL SALICYLATE	99.5

Comments from Robert Tisserand: Intense green/minty odor quality. Constituents are in expected amounts.

Date : July 13, 2018

Certificate of Analysis – GC Profiling

Sample identification

Internal code : 18G12-PTH2-1-CC
Customer identification : Wintergreen Organic - Nepal - W2010383R
Type : Essential oil
Source : *Gaultheria procumbens*
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 : Sarah-Eve Tremblay, M. Sc. A., Chimiste
Analysis date : July 12, 2018

Checked and approved by :

Sylvain Mercier, M. Sc., chimiste 2014-005

Note: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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

Laboratoire PhytoChemia
628 Boulevard du Saguenay Ouest, Saguenay (Qc) G7J 1H4 | www.phytochemia.com

PHYSICOCHEMICAL DATA

Physical aspect: Faintly yellow liquid
Refractive index: 1.5348 ± 0.0003 (20 °C)

CONCLUSION

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

628 Boulevard du Saguenay, Saguenay (Qc) G7J 1H4 | www.phytochemia.com

ANALYSIS SUMMARY

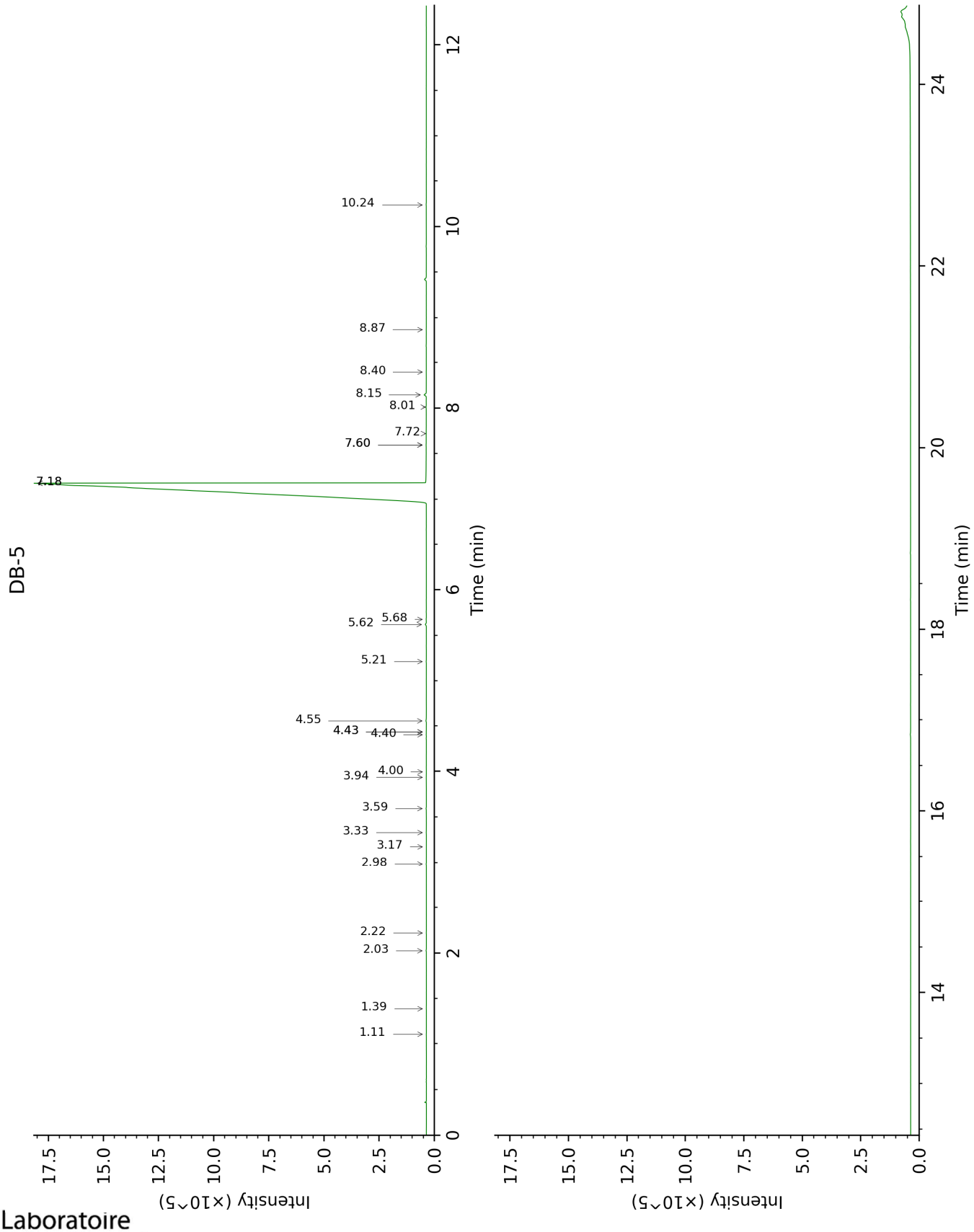
Identification	DB-5 (%)	DB-WAX (%)	Classe
Toluene	tr	tr	Simple phenolic
Hexanal	tr	tr	Aliphatic aldehyde
(3*Z*)-Hexenol	0.01	0.01	Aliphatic alcohol
Hexanol	tr	tr	Aliphatic alcohol
α-Pinene	0.01	0.01	Monoterpene
Camphene	tr	tr	Monoterpene
Benzaldehyde	0.01	0.01	Simple phenolic
β-Pinene	0.01	0.01	Monoterpene
6-Methyl-5-hepten-2-ol	0.01		Aliphatic alcohol
Phenol	tr	tr	Simple phenolic
para-Cymene	0.01	0.01	Monoterpene
Limonene	0.01*	tr	Monoterpene
1,8-Cineole	[0.01]*	tr	Monoterpenic ether
Benzyl alcohol	0.02	tr	Simple phenolic
Octanol	0.01	0.01	Aliphatic alcohol
Linalool	0.04	0.04	Monoterpenic alcohol
Nonanal	0.01	tr	Aliphatic aldehyde
Methyl salicylate	99.43*	99.45	Phenolic ester
α-Terpineol	[99.43]*	0.01	Monoterpenic alcohol
Nerol	0.01*		Monoterpenic alcohol
Benzothiazole	[0.01]*		Thiazole
Neral	tr	tr	Monoterpenic aldehyde
Geraniol	0.01	0.02*	Monoterpenic alcohol
Ethyl salicylate	0.10	0.10	Phenolic ester
Safrole	tr	[0.02]*	Phenylpropanoid
Methyl dihydroxybenzoate isomer 2	tr		Phenolic ester
β-Caryophyllene	0.01	0.01	Sesquiterpene
Penten-3-ol		tr	Aliphatic alcohol
Total identified	**99.70%**	**99.72%**	

*: 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.

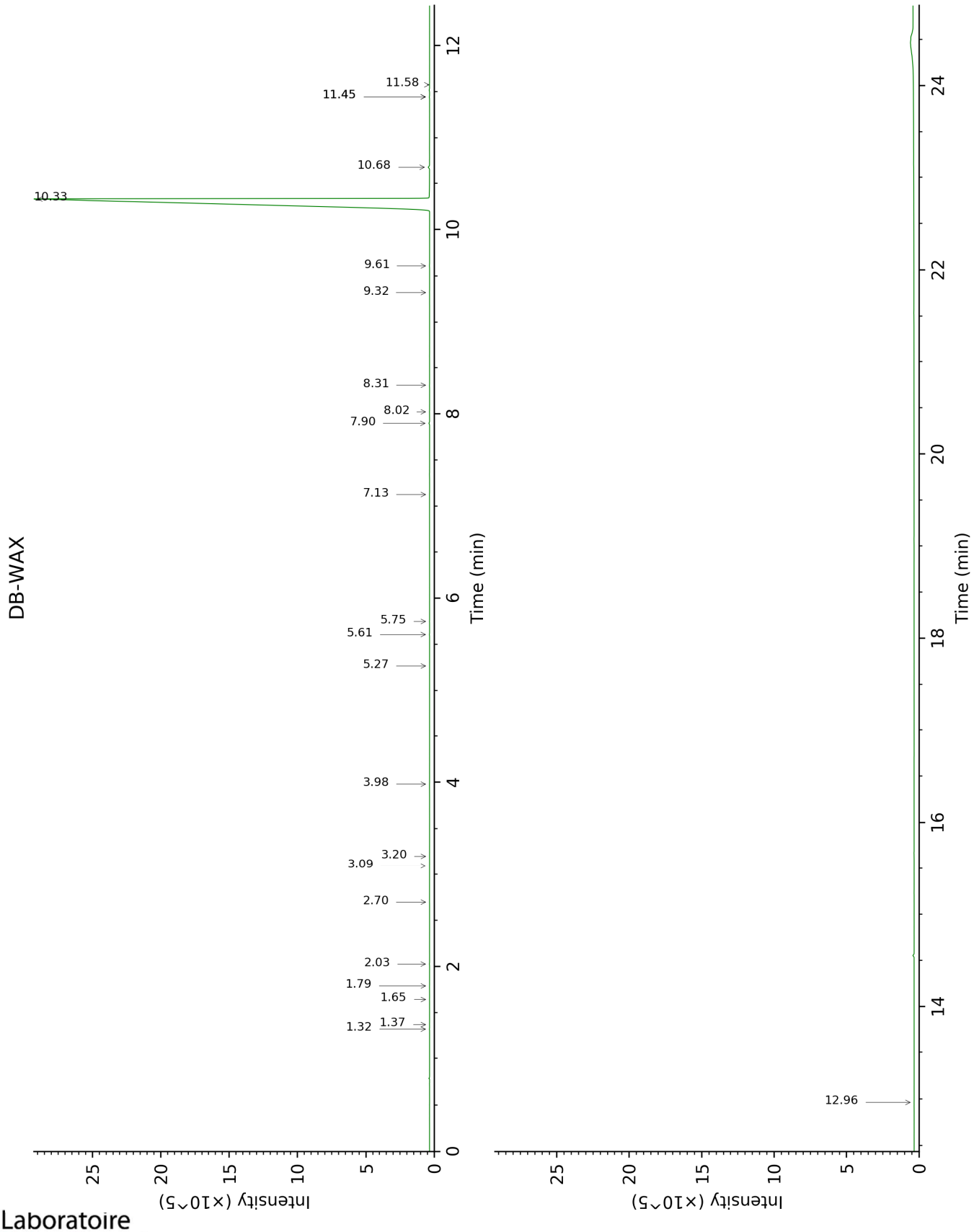
Note: no correction factor was applied

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

628 Boulevard du Saguenay, Saguenay (Qc) G7J 1H4 | www.phytochemia.com



Laboratoire PhytoChemia
Plus que des analyses... des conseils
628 Boulevard du Saguenay, Saguenay (Qc) G7J 1H4 | www.phytochemia.com


DB-WAX
Intensity (×10^5)
Time (min)
11.58
11.45
10.68
10.33
9.61
9.32
8.31
8.02
7.90
7.13
5.75
5.61
5.27
3.98
3.20
3.09
2.70
2.03
1.79
1.65
1.37
1.32
12.96

FULL ANALYSIS DATA

Identification	Column DB-5			Column DB-WAX		
	R.T	R.I	%	R.T	R.I	%
Toluene	1.11	754	tr	1.37	1001	tr
Hexanal	1.39	796	tr	1.79	1045	tr
(3*Z*)-Hexenol	2.03	853	0.01	5.61	1346	0.01
Hexanol	2.22	870	tr	5.27	1321	tr
α-Pinene	2.98	928	0.01	1.32	993	0.01
Camphene	3.17	941	tr	1.64	1031	tr
Benzaldehyde	3.33	952	0.01	7.13	1458	0.01
β-Pinene	3.59	970	0.01	2.03	1069	0.01
6-Methyl-5-hepten-2-ol	3.94	993	0.01			
Phenol	4.00	997	tr	12.96	1943	tr
para-Cymene	4.40	1023	0.01	3.98	1228	0.01
Limonene	4.43*	1025	0.01	3.09	1160	tr
1,8-Cineole	4.43*	1025	[0.01]	3.20	1169	tr
Benzyl alcohol	4.56	1032	0.02	11.58	1818	tr
Octanol	5.21	1074	0.01	8.02	1526	0.01
Linalool	5.62	1100	0.04	7.90	1516	0.04
Nonanal	5.68	1103	0.01	5.75	1356	tr
Methyl salicylate	7.18*	1200	99.43	10.33	1711	99.45
α-Terpineol	7.18*	1200	[99.43]	9.61	1652	0.01
Nerol	7.60*	1228	0.01			
Benzothiazole	7.60*	1228	[0.01]			
Neral	7.72	1236	tr	9.32	1628	tr
Geraniol	8.01	1256	0.01	11.44*	1806	0.02
Ethyl salicylate	8.15	1265	0.10	10.68	1741	0.10
Safrole	8.40	1282	tr	11.44*	1806	[0.02]
Methyl dihydroxybenzoate isomer 2	8.87	1314	tr			
β-Caryophyllene	10.24	1411	0.01	8.31	1548	0.01
Penten-3-ol				2.70	1130	tr
Total identified		**99.70%**			**99.72%**	
Total reported		**99.70%**			**99.72%**	

*: 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