CERTIFICATE OF ANALYSIS - GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 24E10-PTH03
Customer Identification : Organic Blood Orange - Italy - OH0104R
Type : Essential Oil
Source : *Citrus sinensis cv. Sanguinelli*
Customer : Plant Therapy

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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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

Essential Oil, *Citrus sinensis cv. Sanguinelli*
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Report prepared for:
Plant Therapy

GAS CHROMATOGRAPHIC ANALYSIS

Method : PC-MAT-014 - Analysis of the composition of an essential oil or other volatile liquide by FAST GC-FID

✳ISO

Results : See analysis summary (next page)
Analyst : Alexis St-Gelais, Ph. D., Chimiste 2013-174
Date : 2024-05-27

PHYSICOCHEMICAL DATA

Refractive index : 1.4733 ± 0.0003 (20 °C)
Method : PC-MAT-016 - Measure of the refractive index of a liquid.
Analyst : Cindy Caron B. Sc.
Date : 2024-05-13

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
α-Pinene	0.55	Monoterpene
Sabinene	0.22	Monoterpene
β-Pinene	0.02	Monoterpene
Myrcene	1.93	Monoterpene
Octanal	0.30	Aliphatic aldehyde
α-Phellandrene	0.03	Monoterpene
Δ3-Carene	0.11	Monoterpene
β-Phellandrene	0.29	Monoterpene
Limonene	93.98	Monoterpene
(*E*)-β-Ocimene	0.01	Monoterpene
Octanol	0.02	Aliphatic alcohol
Terpinolene	0.02	Monoterpene
Linalool	0.29	Monoterpenic alcohol
Nonanal	0.04	Aliphatic aldehyde
trans-para-Mentha-2,8-dien-1-ol	0.01	Monoterpenic alcohol
trans-Limonene oxide	0.01	Monoterpenic ether
Citronellal	0.03	Monoterpenic aldehyde
α-Terpineol	0.03	Monoterpenic alcohol
Decanal	0.26	Aliphatic aldehyde
Neral	0.03	Monoterpenic aldehyde
Geranial	0.03	Monoterpenic aldehyde
α-Copaene	0.04	Sesquiterpene
Geranyl acetate	0.02	Monoterpenic ester
β-Cubebene	0.02	Sesquiterpene
Dodecanal	0.02	Aliphatic aldehyde
β-Caryophyllene	0.22	Sesquiterpene
β-Copaene	0.02	Sesquiterpene
α-Humulene	0.02	Sesquiterpene
Germacrene D	0.02	Sesquiterpene
Valencene	0.01	Sesquiterpene
α-Muurolene	0.01	Sesquiterpene
δ-Cadinene	0.03	Sesquiterpene
(*E*)-Nerolidol	0.13	Sesquiterpenic alcohol
Caryophyllene oxide	0.02	Sesquiterpenic ether
β-Sinensal	0.03	Sesquiterpenic aldehyde
Tangeretin	0.03	Flavonoid
Consolidated total	**98.85**	

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

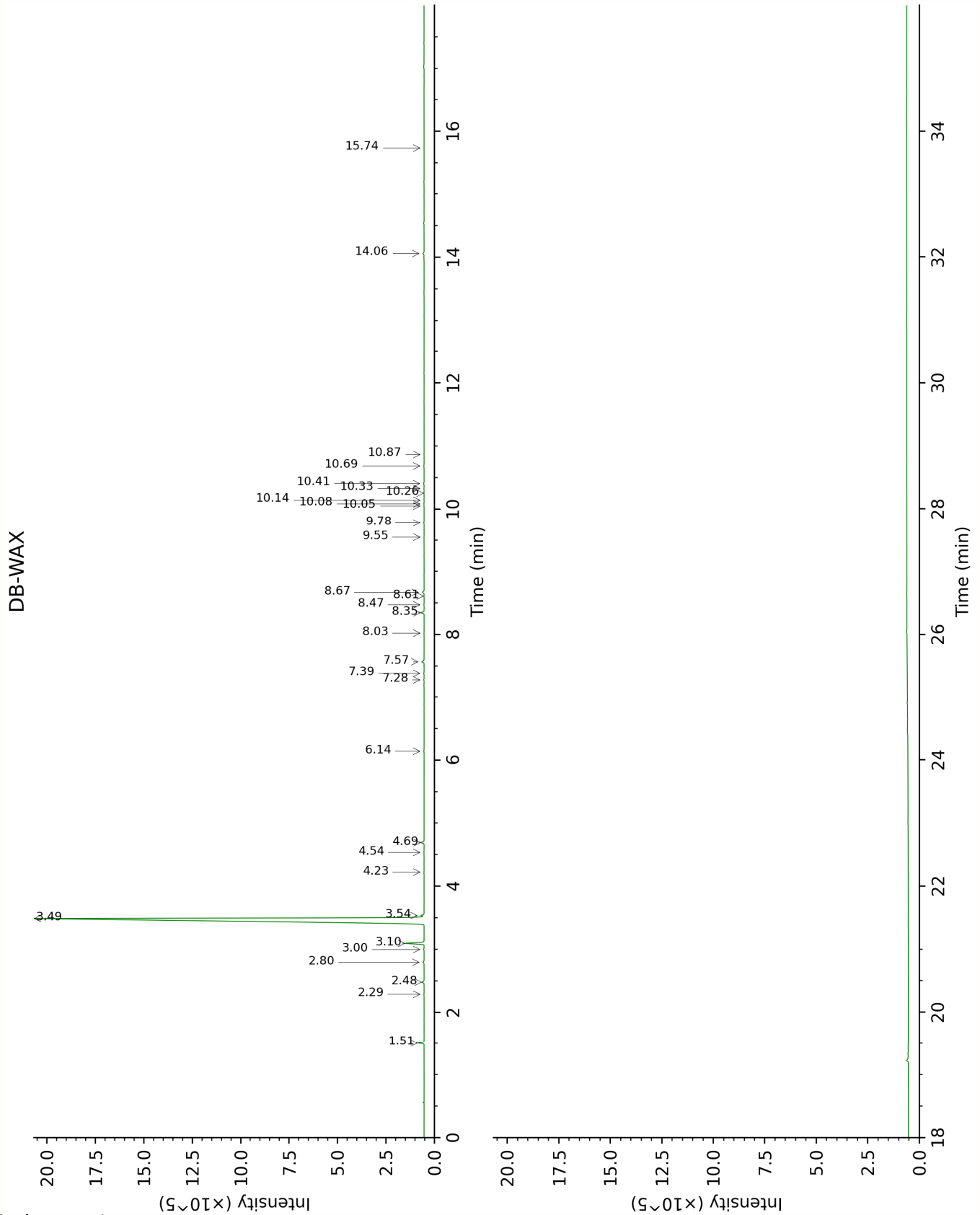Note: no correction factor was applied

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
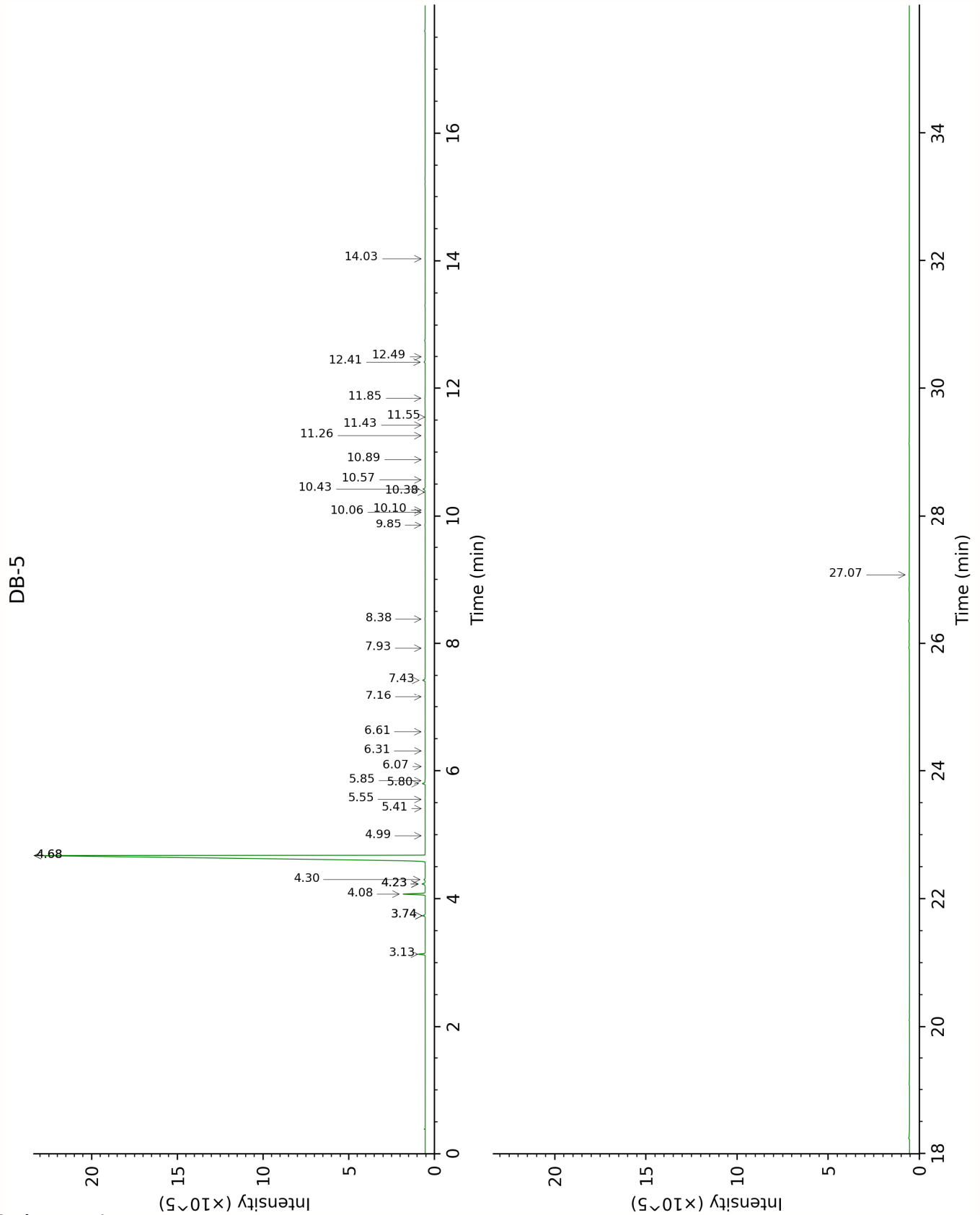
between columns, the algorithm is set to prioritize data from the most standard DB-5 column, and smallest values so as to avoid overestimating individual content. This process is semi-automatic. Advanced users are invited to consult the "Full analysis data" table after the chromatograms in this report 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.

Bracketed value ([xx]): A bracketed percent value indicate that two or more compound percentage could not be solved due to coelution.

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

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DB-WAX

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DB-5

Essential Oil, *Citrus sinensis cv. Sanguinelli*
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FULL ANALYSIS DATA

	Column DB-WAX			Column DB-5		
α-Pinene	1.51	991.4	0.54	3.14	931.4	0.55
Sabinene	2.48	1085.0	0.22	3.74*	971.2	[0.24]
β-Pinene	2.29	1066.8	0.02	3.74*	971.2	[0.24]
Myrcene	3.10	1133.5	1.95	4.08	993.6	1.93
Octanal	4.69	1249.3	0.30	4.23*	1004.0	[0.34]
α-Phellandrene	3.00	1126.1	0.03	4.23*	1004.0	[0.34]
Δ3-Carene	2.80	1110.7	0.11	4.30	1008.4	0.11
β-Phellandrene	3.54	1166.7	0.29	4.68*	1031.9	[94.22]
Limonene	3.49	1163.1	93.98	4.68*	1031.9	[94.22]
(*E*)-β-Ocimene	4.23	1216.6	0.02	4.99	1051.4	0.01
Octanol	8.47	1527.2	0.02	5.41	1078.0	0.02
Terpinolene	4.54	1238.4	0.02	5.55	1087.0	0.02
Linalool	8.35	1517.6	0.31	5.80	1102.5	0.29
Nonanal	6.14	1354.8	0.03	5.85	1105.3	0.04
trans-para-Mentha-2,8-dien-1-ol				6.07	1119.5	0.01
trans-Limonene oxide				6.31	1135.1	0.01
Citronellal	7.28	1437.9	0.03	6.61	1154.3	0.03
α-Terpineol	10.08	1653.8	0.03	7.16	1189.3	0.03
Decanal	7.57	1459.1	0.24	7.43	1206.5	0.26
Neral	9.78	1629.3	0.05	7.93	1240.1	0.03
Geranial	10.41	1679.8	0.06	8.38	1270.6	0.03
α-Copaene	7.39	1445.6	0.03	9.85	1372.6	0.04
Geranyl acetate	10.87	1718.0	0.02	10.06	1387.4	0.02
β-Cubebene	8.02	1492.6	0.02	10.10	1389.9	0.02
Dodecanal	10.26	1667.5	0.02	10.38	1410.0	0.02
β-Caryophyllene	8.67	1542.4	0.22	10.43	1413.5	0.22
β-Copaene	8.61	1537.9	0.01	10.57	1424.2	0.02
α-Humulene	9.55	1610.7	0.02	10.89	1447.7	0.02
Germacrene D	10.05	1651.0	0.02	11.26	1475.8	0.02
Valencene	10.14	1658.4	0.01	11.43	1488.0	0.01
α-Muurolene	10.33	1673.5	0.04	11.55	1497.4	0.01
δ-Cadinene	10.69	1702.7	0.05	11.85	1520.3	0.03
(*E*)-Nerolidol	14.06	1999.2	0.15	12.41	1564.5	0.13
Caryophyllene oxide				12.50	1571.1	0.02
β-Sinensal	15.74	2161.1	0.01	14.03	1696.4	0.03
Tangeretin				27.07	3142.4	0.03
Total reported		98.89%			98.80%	

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*: Two or more compounds are coeluting on this column

[xx]: Duplicate percentage due to coelutions, only the first one is 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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