

Date : 2026-01-12

CERTIFICATE OF ANALYSIS - GC PROFILING (FULL TERPENES)

SAMPLE IDENTIFICATION

Internal code : 25H20-PFR03

Type : Plant material

Source : *Cannabis sativa*

Customer :

Medicine Wheel Ranch Inc.

443 RUSSELL ROAD

NORTH RUSSELL, ON, CANADA, K4R 1E5

LIC-Q4FVZ772YD-2024

Name:

Tyler LeBlanc

6132664806

tyler@tylerleblanc.com

Product:

Category 5

Lot:

M34331725

Checked and approved by:



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

Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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

This report is an update of the version first issued on 2025-08-26 to make a correction in the sample identification section.

PHYSICOCHEMICAL DATA

Method : PC-MAT-024 - Vegetal material moisture content determination

Moisture content : 14.97 % m/m

Analyst : Claudie Vézina

Date : 2025-08-21

GAS CHROMATOGRAPHIC ANALYSIS

Method : PC-MAT-004 - Terpenes and volatiles profiling by response factor

Results : See analysis summary (table)

Analyst : Sylvain Mercier, M. Sc., Chimiste 2014-005

Date : 2025-08-21

CONCLUSION

This sample belongs to a myrcene/limonene/linalool-rich subtype, features germacrene B/ γ -elemene, and does not notably express the bulnesol/guaiol/eudesmol sesquiterpenols.

REFERENCE

(1) Cachet, T.; Brevard, H.; Chaintreau, A.; Demyttenaere, J.; French, L.; Gassenmeier, K.; Joulain, D.; Koenig, T.; Leijts, H.; Liddle, P.; et al. IOFI Recommended Practice for the Use of Predicted Relative-Response Factors for the Rapid Quantification of Volatile Flavouring Compounds by GC-FID. *Flavour Fragr. J.* 2016, 31 (3), 191–194.

ANALYSIS SUMMARY - CONSOLIDATED CONTENTS

Identification	Anhydrous (mg/g)	As is (mg/g)	Class
Limonene	4.81	4.09	Monoterpene
Myrcene	4.76	4.05	Monoterpene
Linalool	4.25	3.61	Monoterpenic alcohol
β -Caryophyllene	2.55	2.17	Sesquiterpene
Germacrene B	1.63	1.39	Sesquiterpene
Selina-3,7(11)-diene	1.34	1.14	Sesquiterpene
Hexyl hexanoate	1.01	0.86	Aliphatic ester
Selina-4(15),7(11)-diene	0.90	0.77	Sesquiterpene
β -Pinene	0.89	0.76	Monoterpene
α -Humulene	0.79	0.67	Sesquiterpene
Hexyl acetate	0.62	0.53	Aliphatic ester
(E)- β -Farnesene	0.62	0.53	Sesquiterpene
γ -Elemene	0.58	0.49	Sesquiterpene

α -Pinene	0.47	0.4	Monoterpene
α -Terpineol	0.46	0.39	Monoterpenic alcohol
α -Bisabolol	0.46	0.39	Sesquiterpenic alcohol
endo-Fenchol	0.43	0.37	Monoterpenic alcohol
Octanol	0.37	0.31	Aliphatic alcohol
trans-Pinene hydrate	0.35	0.3	Monoterpenic alcohol
Hexanol	0.31	0.26	Aliphatic alcohol
α -Guaiene	[0.29]	[0.24]	Sesquiterpene
trans- α -Bergamotene	[0.29]	[0.24]	Sesquiterpene
Spirovetiva-1(10),7(11)-diene	[0.24]	[0.2]	Sesquiterpene
Eremophila-1(10),7(11)-diene	[0.24]	[0.2]	Sesquiterpene
(3E,6E)- α -Farnesene	0.21	0.18	Sesquiterpene
Octyl acetate	0.20	0.17	Aliphatic ester
(E)- α -Bisabolene	0.18	0.15	Sesquiterpene
β -Bisabolene	0.18	0.15	Sesquiterpene
(E)-Nerolidol	0.17	0.15	Sesquiterpenic alcohol
α -Selinene	0.16	0.14	Sesquiterpene
Selina-4,7(11)-diene	0.15	0.13	Sesquiterpene
Camphene	0.14	0.12	Monoterpene
Caryophyllenyl alcohol	0.14	0.12	Sesquiterpenic alcohol
Fenchone	0.13	0.11	Monoterpenic ketone
Borneol	0.12	0.1	Monoterpenic alcohol
Hexyl butyrate	0.11	0.09	Aliphatic ester
Octyl hexanoate	0.09	0.08	Aliphatic ester
8-Hydroxylinalool isomer	0.08	0.07	Monoterpenic alcohol
Juniper camphor	0.08	0.07	Sesquiterpenic alcohol
β -Curcumene	0.08	0.07	Sesquiterpene
β -Selinene	0.08	0.07	Sesquiterpene
Terpinolene	0.07	0.06	Monoterpene
Sesquicineole	0.06	0.06	Sesquiterpenic ether
cis-Pinene hydrate	0.06	0.05	Monoterpenic alcohol
β -Sesquiphellandrene	0.06	0.05	Sesquiterpene
γ -Curcumene	0.06	0.05	Sesquiterpene
Unknown	0.05	0.05	Sesquiterpene
Bulnesol	0.05	0.05	Sesquiterpenic alcohol
(3Z)-Caryophylla-3,8(13)-dien-5 β -ol	0.05	0.04	Sesquiterpenic alcohol
Caryophyllene oxide	0.05	0.04	Sesquiterpenic ether
Unknown	0.05	0.04	Sesquiterpene
γ -Muurokene	0.05	0.04	Sesquiterpene
Decenol isomer	0.05	0.04	Aliphatic alcohol
Decanol	0.05	0.04	Aliphatic alcohol
α -Santalene	0.05	0.04	Sesquiterpene
Sesquisabinene B	0.04	0.04	Sesquiterpene
Ipsdienol	0.04	0.03	Monoterpenic alcohol
δ -Guaiene	0.04	0.03	Sesquiterpene

Phytol	0.04	0.03	Diterpenic alcohol
Limonene <i>trans</i> -glycol	0.04	0.03	Monoterpenic alcohol
14-Hydroxy-9-epi-(<i>E</i>)-caryophyllene	0.04	0.03	Sesquiterpenic alcohol
Selina-4,11-diene	0.04	0.03	Sesquiterpene
2-Heptanone	0.03	0.03	Aliphatic ketone
Aromadendrane-4,10-diol	0.03	0.03	Sesquiterpenic alcohol
Eudesma-5,7(11)-diene	0.03	0.03	Sesquiterpene
α -Eudesmol	0.03	0.03	Sesquiterpenic alcohol
γ -Cadinene	0.03	0.03	Sesquiterpene
δ -Cadinene	0.03	0.03	Sesquiterpene
β -Phellandrene	0.03	0.03	Monoterpene
Sesquithujene	0.03	0.02	Sesquiterpene
Guai-10(14)-en-11-ol?	0.02	0.02	Sesquiterpenic alcohol
Unknown	0.02	0.02	Unknown
β -Copaene	0.02	0.02	Sesquiterpene
Unknown	0.02	0.02	Sesquiterpene
Myrtenol	0.02	0.02	Monoterpenic alcohol
Octyl butyrate	0.02	0.02	Aliphatic ester
Unknown	0.02	0.02	Sesquiterpene
α -Muurolene	0.02	0.02	Sesquiterpene
Olivetol	0.02	0.02	Simple phenolic
<i>trans</i> -Pinocarvyl acetate	0.02	0.02	Monoterpenic ester
Valencene	0.02	0.02	Sesquiterpene
Unknown	0.02	0.02	Oxygenated monoterpene
<i>cis</i> -Sabinene hydrate	0.02	0.02	Monoterpenic alcohol
allo-Aromadendrene	0.02	0.02	Sesquiterpene
Caproic acid	0.02	0.02	Aliphatic acid
Camphene hydrate	0.02	0.02	Monoterpenic alcohol
Unknown	0.02	0.02	Oxygenated sesquiterpene
14-Hydroxy-(<i>E</i>)-caryophyllene	0.02	0.02	Sesquiterpenic alcohol
Bornyl acetate	0.02	0.02	Monoterpenic ester
Gynuradienol?	0.02	0.01	Sesquiterpenic alcohol
Terpinyl acetate analog	0.02	0.01	Monoterpenic ester
Humulene epoxide II	0.02	0.01	Sesquiterpenic ether
α -Ylangene	0.02	0.01	Sesquiterpene
Terpinen-4-ol	0.02	0.01	Monoterpenic alcohol
Phytadiene isomer I	0.02	0.01	Diterpene
(3 <i>E</i>)-Hexenol	0.02	0.01	Aliphatic alcohol
(<i>Z</i>)- β -Ocimene	0.01	0.01	Monoterpene
α -Funebrene	0.01	0.01	Sesquiterpene
Decenol isomer II	0.01	0.01	Aliphatic alcohol
Selin-6-en-4 α -ol	0.01	0.01	Sesquiterpenic alcohol
Caryophylladienol II	0.01	0.01	Sesquiterpenic alcohol
Geranyl caproate	0.01	0.01	Monoterpenic ester
Clovanediol?	0.01	0.01	Sesquiterpenic alcohol

α -Cubebene	0.01	0.01	Sesquiterpene
Neophytadiene	0.01	0.01	Diterpene
Cryptomeridiol analog II	0.01	0.01	Sesquiterpenic alcohol
Phytadiene isomer II	0.01	0.01	Diterpene
Geraniol	0.01	0.01	Monoterpenic alcohol
Sabinene	0.01	0.01	Monoterpene
Unknown	0.01	0.01	Unknown
(2E,4E)-Decadienol?	0.01	0.01	Aliphatic alcohol
<i>para</i> -Camphorene	0.01	0.01	Diterpene
Piperitenone	0.01	0.01	Monoterpenic ketone
Agarospirol?	0.01	0.01	Sesquiterpenic alcohol
4,5-diepi-Aristolochene	0.01	0.01	Sesquiterpene
Limonene <i>cis</i> -glycol	0.01	0.01	Monoterpenic alcohol
α -Copaene	0.01	0.01	Sesquiterpene
5-Ethenyl-1,5-bis(4-methyl-3-penten-1-yl)-cyclohexene?	0.01	0.01	Diterpene
Hinesol	0.01	0.01	Sesquiterpenic alcohol
Indole	0.01	0.01	Indole
<i>meta</i> -Camphorene	0.01	0.01	Diterpene
γ -Terpinene	0.01	0.01	Monoterpene
10-epi- γ -Eudesmol	0.01	0.01	Sesquiterpenic alcohol
epi-Cubebol	0.01	0.01	Sesquiterpenic alcohol
Unknown	0.01	0.01	Unknown
Isopiperitenone	0.01	0.01	Monoterpenic ketone
5,7-diepi- α -Eudesmol	0.01	0.01	Sesquiterpenic alcohol
γ -Eudesmol	0.01	0.01	Sesquiterpenic alcohol
Eremoligenol?	0.01	0.01	Sesquiterpenic alcohol
6-Methoxymellein?	0.01	0.01	Phenylpropanoid ester
Unknown	0.01	0.01	Sesquiterpene
(E)- β -Ocimene	0.01	0.01	Monoterpene
(2E,6E)-Farnesol	0.01	0.01	Sesquiterpenic alcohol
β -Eudesmol	0.01	0.01	Sesquiterpenic alcohol
Hexyl isovalerate	0.01	0.01	Aliphatic ester
Bicyclogermacrene	0.01	0.01	Sesquiterpene
Humulene epoxide I	0.01	0.01	Sesquiterpenic ether
<i>trans</i> -Sabinene hydrate	0.01	0.01	Monoterpenic alcohol
<i>cis</i> -Carveol	0.01	0.01	Monoterpenic alcohol
α -Fenchene	0.01	0.01	Monoterpene
Phytone	0.01	0.01	Terpenic ketone
Unknown	0.01	0.01	Oxygenated sesquiterpene
Hexyl isobutyrate	0.01	0.0	Aliphatic ester
Unknown	0.01	0.0	Unknown
<i>trans</i> -Carveol	0.01	0.0	Monoterpenic alcohol
Thymol	tr	tr	Monoterpenic alcohol
α -Thujene	tr	tr	Monoterpene

Gleenol	tr	tr	Sesquiterpenic alcohol
Isopropyl butyrate	tr	tr	Aliphatic ester
Hashishene	tr	tr	Monoterpene
Caryolane-1,9 β -diol	tr	tr	Sesquiterpenic alcohol
Cubebol	tr	tr	Sesquiterpenic alcohol
6,9-Guaiadiene	tr	tr	Sesquiterpene
Spathulenol	tr	tr	Sesquiterpenic alcohol
(3Z)-Hexenol	tr	tr	Aliphatic alcohol
α -Terpinene	tr	tr	Monoterpene
α -Phellandrene	tr	tr	Monoterpene
<i>cis</i> - α -Bergamotene	tr	tr	Sesquiterpene
Caryophyllene oxide isomer	tr	tr	Sesquiterpenic ether
Consolidated total	32.70	27.83	

tr: The compound has been detected below 0.01 mg/g.

[xx]: Duplicate concentration due to coelutions, taken only once into account in the consolidated total

Note: Individual compounds contents were corrected following the method of Cachet et al., 2016 (Flavour and Fragrance Journal guidelines).
Unknown compounds are expressed in equivalents of internal standard without correction factor.

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.

Unknowns: The occurrence of unknown compounds is to be expected in many samples, and does not denote particular problems unless noted otherwise in the conclusion. Some recurring, characteristic unknowns are listed for cannabis samples as they are representative of the actual composition of the material.