Date : 2024-01-25

Certificate of Analysis - GC Profiling (Main Terpenes)

Sample Identification

Internal code : 24A18-PUF03
Customer Identification : Atomic Berry 2023-08-10_CBGK
Type : Plant material
Source : *Cannabis sativa*
Customer : Pure Fire Company

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Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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

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Physicochemical data

Method : PC-MAT-024 - Vegetal material moisture content determination
Moisture content : 13.66 % m/m
Analyst : Kassandra Baker
Date : 2024-01-19

Gas Chromatographic Analysis

Method : PC-MAT-004 - Terpenes and volatiles profiling by response factor
Results : See analysis summary (table)
Analyst : Benoit Roger, Ph. D.
Date : 2024-01-24

Reference

(1) Cachet, T.; Brevard, H.; Chaintreau, A.; Demyttenaere, J.; French, L.; Gassenmeier, K.; Joulain, D.; Koenig, T.; Leijs, 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
Hexanol	0.01	0.01	Aliphatic alcohol
α-Thujene	0.24	0.21	Monoterpene
α-Pinene	0.95	0.82	Monoterpene
α-Fenchene	0.01	0.01	Monoterpene
Camphene	0.06	0.05	Monoterpene
Sabinene	0.18	0.15	Monoterpene
β-Pinene	1.58	1.36	Monoterpene
Myrcene	2.20	1.90	Monoterpene
α-Phellandrene	0.50	0.44	Monoterpene
Δ3-Carene	0.46	0.39	Monoterpene
α-Terpinene	0.41	0.35	Monoterpene
para-Cymene	0.02	0.01	Monoterpene
Limonene	2.07	1.78	Monoterpene
β-Phellandrene	0.79	0.69	Monoterpene
1,8-Cineole	0.06	0.05	Monoterpenic ether
(*Z*)-β-Ocimene	0.03	0.03	Monoterpene
(*E*)-β-Ocimene	2.45	2.12	Monoterpene
γ-Terpinene	0.25	0.22	Monoterpene

cis-Sabinene hydrate	0.06	0.05	Monoterpenic alcohol
Fenchone	0.03	0.03	Monoterpenic ketone
Terpinolene	10.26	8.86	Monoterpene
trans-Sabinene hydrate	0.04	0.03	Monoterpenic alcohol
Linalool	0.35	0.30	Monoterpenic alcohol
endo-Fenchol	0.24	0.21	Monoterpenic alcohol
trans-Pinene hydrate	0.17	0.15	Monoterpenic alcohol
cis-Pinene hydrate	0.04	0.04	Monoterpenic alcohol
Camphene hydrate	0.07	0.06	Monoterpenic alcohol
Ipsdienol	0.01	0.01	Monoterpenic alcohol
Borneol	0.07	0.06	Monoterpenic alcohol
Terpinen-4-ol	0.12	0.10	Monoterpenic alcohol
α-Terpineol	0.43	0.37	Monoterpenic alcohol
Hexyl butyrate	tr	tr	Aliphatic ester
Citronellol	0.02	0.02	Monoterpenic alcohol
Geraniol	0.09	0.08	Monoterpenic alcohol
Decanol	0.01	0.01	Aliphatic alcohol
α-Cubebene	0.02	0.01	Sesquiterpene
α-Ylangene	0.04	0.04	Sesquiterpene
Unknown	0.06	0.05	Sesquiterpene
Hexyl hexanoate	0.05	0.04	Aliphatic ester
β-Caryophyllene	0.90	0.78	Sesquiterpene
α-Santalene	0.04	0.03	Sesquiterpene
γ-Elemene	0.23	0.20	Sesquiterpene
trans-α-Bergamotene	[0.26]	[0.23]	Sesquiterpene
α-Guaiene	[0.26]	[0.23]	Sesquiterpene
α-Humulene	0.25	0.21	Sesquiterpene
allo-Aromadendrene	0.05	0.04	Sesquiterpene
(*E*)-β-Farnesene	0.38	0.33	Sesquiterpene
Unknown	0.04	0.04	Sesquiterpene
β-Selinene	0.20	0.17	Sesquiterpene
α-Selinene	0.23	0.20	Sesquiterpene
δ-Guaiene	0.07	0.06	Sesquiterpene
β-Bisabolene	0.06	0.05	Sesquiterpene
(3*E*,6*E*)-α-Farnesene	0.16	0.14	Sesquiterpene
Eremophila-1(10),7(11)-diene	[0.52]	[0.45]	Sesquiterpene
Spirovetiva-1(10),7(11)-diene	[0.52]	[0.45]	Sesquiterpene
Selina-4(15),7(11)-diene	0.83	0.72	Sesquiterpene
Selina-4,7(11)-diene?	0.03	0.03	Sesquiterpene
Selina-3,7(11)-diene	1.29	1.12	Sesquiterpene
(*E*)-α-Bisabolene	0.15	0.13	Sesquiterpene
Germacrene B	0.60	0.52	Sesquiterpene
Eudesma-5,7(11)-diene	0.03	0.02	Sesquiterpene
(*E*)-Nerolidol	0.02	0.01	Sesquiterpenic alcohol
Caryophyllene oxide	0.04	0.03	Sesquiterpenic ether

Guaiol	0.01	0.01	Sesquiterpenic alcohol
Humulene epoxide II	0.02	0.02	Sesquiterpenic ether
Selin-6-en-4α-ol isomer	tr	tr	Sesquiterpenic alcohol
Selin-6-en-4α-ol	0.03	0.02	Sesquiterpenic alcohol
γ-Eudesmol	0.01	0.01	Sesquiterpenic alcohol
β-Eudesmol	0.02	0.02	Sesquiterpenic alcohol
α-Eudesmol	0.04	0.04	Sesquiterpenic alcohol
Bulnesol	0.01	0.01	Sesquiterpenic alcohol
(3*Z*)-Caryophylla-3,8(13)-dien-5β-ol	0.04	0.03	Sesquiterpenic alcohol
α-Bisabolol	0.08	0.07	Sesquiterpenic alcohol
Juniper camphor	0.06	0.05	Sesquiterpenic alcohol
Aromadendrane-4,10-diol	0.04	0.03	Sesquiterpenic alcohol
(2*E*,6*E*)-Farnesol	0.02	0.02	Sesquiterpenic alcohol
Cryptomeridiol	0.01	0.01	Sesquiterpenic alcohol
meta-Camphorene	0.01	0.01	Diterpene
Phytol	0.20	0.18	Diterpenic alcohol
Consolidated total	**31.44**	**27.14**	

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.