

Perennia Food and Agriculture Certificate of Analysis

173 Dr Bernie MacDonald Drive, Bible Hill, Nova Scotia B6L 2H5 | License: LIC-SSO85RTR5Z-2018-1
Cannabis Analytical Services



Sample **R00017-S1**

| | | | |
|-------------------|---|----------|------------------------|
| Sample ID | RC-0024-070122 (6457) | Matrix | Extract (Cannabis Oil) |
| Tested for | Retro Cannabis and Hemp Extracts (nick@retroextracts.com) | | |
| Sampled - | Sampled by Client | Received | Jan 07, 2022 |
| Analyses executed | CAN, TER, RES, ATO, MIB, PES, HME, FMI | | Reported Jan 17, 2022 |

CAN - Cannabinoid Profile Analysis

Analyzed Jan 11, 2022 | Instrument HPLC | Method UNODC (modified)

| Analyte | LOD % | Result % | Result mg/g |
|---------------------------------------|-------|--------------|---------------|
| Cannabidiolic Acid (CBDA) | 0.01 | ND | ND |
| Cannabigerolic Acid (CBGA) | | 0.12 | 1.20 |
| Cannabigerol (CBG) | 0.02 | 2.33 | 23.30 |
| Cannabidiol (CBD) | 0.01 | 0.20 | 2.00 |
| Tetrahydrocannabivarin (THCV) | 0.01 | 0.45 | 4.50 |
| Cannabinol (CBN) | 0.01 | 0.76 | 7.60 |
| Δ-9-tetrahydrocannabinol (Δ9-THC) | 0.02 | 70.16 | 701.65 |
| Δ8-tetrahydrocannabinol (Δ8-THC) | 0.02 | ND | ND |
| Cannabichromene (CBC) | 0.01 | 1.18 | 11.80 |
| Tetrahydrocannabinolic Acid (THCA) | 0.01 | ND | ND |
| Total THC (THCa * 0.877 + THC) | | 70.16 | 701.65 |
| Total CBD (CBDa * 0.877 + CBD) | | 0.20 | 2.00 |

HME - Heavy Metals Detection Analysis

Analyzed Jan 11, 2022 | Instrument ICPMS | Method USP 232/233

| Analyte | LOD ug/g | Result ug/g | Analyte | LOD ug/g | Result ug/g |
|--------------|----------|-------------|--------------|----------|-------------|
| Cadmium (Cd) | 0.06 | ND | Arsenic (As) | 0.014 | ND |
| Mercury (Hg) | 0.02 | ND | Lead (Pb) | 0.03 | ND |

LOD Limit of Detection
LOQ Limit of Quantification
NT Not Reported
ND Not Detected
BDL Below Detection Limit
<LOQ Detected
>ULOL Above upper limit of linearity
CFU/g Colony Forming Units per 1 gram
TNTC Too Numerous to Count



Scan the QR code to verify authenticity.

Authorized Signature

S. Nichole Taylor

Nichole Taylor, MSc, Lab Director
Mon, 17 Jan 2022 10:55:03 AM AST

Adele Joyce

Adele Joyce, QA Coordinator

Perennia Food and Agriculture | 173 Dr Bernie MacDonald Drive, Bible Hill, Nova Scotia B6L 2H5 | 902.890.4052 | Cannabis Analytical Services



*This report shall not be reproduced except in full, without the written approval of the lab. This report is for informational purposes only and should not be used to diagnose, treat or prevent any disease. Results are only for samples and batches indicated. Results are reported on an "as received" basis, unless indicated otherwise.

MIB - Microbial Testing Analysis

Analyzed Jan 17, 2022 | Instrument Traditional Plating Method | Method Salmonella: EP 2.6.31 E. Coli: EP 2.6.31 Bile-tolerant gram negative bacteria: EP 2.6.31 TAMC: EP 2.6.12 TYMC: EP 2.6.12 P. Aeruginosa: EP 2.6.31 S. Aureus: EP 2.6.31

| Analyte | LOD | Result | Unit | Limit |
|--------------------------------------|-----|--------|-------|---------------|
| Bile-tolerant gram negative bacteria | 10 | ND | CFU/g | |
| Total Aerobic Microbial Count | 10 | ND | CFU/g | |
| Total Combined Yeast and Molds Count | 10 | ND | CFU/g | |
| Salmonella spp. | | ND | | Absent in 25g |
| E. Coli | | ND | | Absent in 1g |
| Staphylococcus aureus | | NT | | Absent in 1g |
| Pseudomonas aeruginosa | | NT | | Absent in 1g |

ATO - Aflatoxins Testing Analysis

Analyzed Jan 12, 2022 | Instrument LC/MS/MS | Method EP 2.8.18 Modified

| Analyte | LOD ug / kg | Result ug / kg | Limit ug / kg | Analyte | LOD ug / kg | Result ug / kg | Limit ug / kg |
|------------------|-------------|----------------|---------------|--------------|-------------|----------------|---------------|
| Aflatoxin B1 | 0.65 | ND | 2 ug / kg | Aflatoxin B2 | 0.5 | ND | 2 ug / kg |
| Aflatoxin G1 | 0.94 | ND | 2 ug / kg | Aflatoxin G2 | 0.57 | ND | 2 ug / kg |
| Total Aflatoxins | 2.66 | ND | 4 ug / kg | | | | |

LOD Limit of Detection
 LOQ Limit of Quantification
 NT Not Reported
 ND Not Detected
 BDL Below Detection Limit
 <LOQ Detected
 >ULOL Above upper limit of linearity
 CFU/g Colony Forming Units per 1 gram
 TNTC Too Numerous to Count



Scan the QR code to verify authenticity.

Authorized Signature
S. Nichole Taylor
 Nichole Taylor, MSc, Lab Director
 Mon, 17 Jan 2022 10:55:03 AM AST
Adele Joyce

Adele Joyce, QA Coordinator

PES - Pesticides Screening Analysis



Analyzed Jan 13, 2022 | Instrument LC/MS/MS and GC/MS/MS | Method AOAC 101.2018 Modified - Last Val. (Dry flower) Nov. 28, 2019, (Oil) Sept. 4, 2020

| Analyte | LOD ug/g | Result ug/g | Limit ug/g | Analyte | LOD ug/g | Result ug/g | Limit ug/g |
|--------------------|----------|-------------|------------|---------------------|----------|-------------|------------|
| Abamectin | 0.25 | BDL | 0.25 | Acephate | 0.05 | BDL | 0.05 |
| Acetamiprid | 0.05 | BDL | 0.05 | Acequinocyl | 1.5 | BDL | 0.1 |
| Aldicarb | 0.5 | BDL | 1.0 | Allethrin | 0.1 | BDL | 0.2 |
| Azadirachtin | 0.5 | BDL | 1.0 | Azoxystrobin | 0.01 | BDL | 0.02 |
| Benzovindiflupyr | 0.01 | BDL | 0.02 | Bifenazate | 0.01 | BDL | 0.05 |
| Bifenthrin | 5.0 | BDL | 1.0 | Boscalid | 0.01 | BDL | 0.02 |
| Buprofezin | 0.01 | BDL | 0.02 | Carbaryl | 0.025 | BDL | 0.05 |
| Carbofuran | 0.01 | BDL | 0.02 | Chlorantraniliprole | 0.01 | BDL | 0.02 |
| Chlorphenapyr | 0.5 | BDL | 0.1 | Chlorpyrifos | 0.2 | BDL | 0.04 |
| Clofentezine | 0.01 | BDL | 0.02 | Clothianidin | 0.025 | BDL | 0.05 |
| Coumaphos | 0.01 | BDL | 0.02 | Cyantranilipole | 0.01 | BDL | 0.02 |
| Cyfluthrin | 1.0 | BDL | 1.0 | Cypermethrin | 1.0 | BDL | 1.0 |
| Cyprodinil | 0.01 | BDL | 0.25 | Daminozide | 0.5 | BDL | 0.1 |
| Deltamethrin | 0.25 | BDL | 1.0 | Diazinon | 1.0 | BDL | 0.02 |
| Dichlorvos | 0.05 | BDL | 0.1 | Dimethoate | 0.01 | BDL | 0.02 |
| Dimethomorph | 0.025 | BDL | 0.05 | Dinotefuran | 0.05 | BDL | 0.1 |
| Dodemorph | 0.25 | BDL | 0.05 | Endosulfan-alpha | 2.0 | BDL | 0.5 |
| Endosulfan-beta | 0.25 | BDL | 0.2 | Endosulfan-sulfate | 2.5 | BDL | 0.5 |
| Ethoprophos | 0.01 | BDL | 0.02 | Etofenprox | 0.25 | BDL | 0.05 |
| Etoxazole | 0.1 | BDL | 0.02 | Etridiazol | 0.15 | BDL | 0.03 |
| Fenoxycarb | 0.01 | BDL | 0.02 | Fenpyroximate | 0.1 | BDL | 0.02 |
| Fensulfothion | 0.01 | BDL | 0.02 | Fenthion | 0.01 | BDL | 0.02 |
| Fenvalerate | 0.5 | BDL | 0.1 | Fipronil | 0.01 | BDL | 0.06 |
| Fonicamid | 0.025 | BDL | 0.05 | Fludioxonil | 0.01 | BDL | 0.02 |
| Fluopyram | 0.01 | BDL | 0.02 | Hexythiazox | 0.5 | BDL | 0.02 |
| Imazalil | 0.01 | BDL | 0.01 | Imidacloprid | 0.01 | BDL | 0.05 |
| Iprodione | 0.2 | BDL | 0.02 | Kinoprene | 1.25 | BDL | 0.5 |
| Kresoxim-methyl | 0.1 | BDL | 0.02 | Malathion | 0.01 | BDL | 0.02 |
| Metalaxyl | 0.01 | BDL | 0.02 | Methiocarb | 0.01 | BDL | 0.02 |
| Methomyl | 0.025 | BDL | 0.05 | Methoprene | 20.0 | BDL | 2.0 |
| Methyl-parathion | 0.5 | BDL | 0.05 | Mevinphos | 0.025 | BDL | 0.05 |
| MGK-264 | 0.25 | BDL | 0.05 | Myclobutanil | 0.01 | BDL | 0.02 |
| Naled | 0.5 | BDL | 0.2 | Novaluron | 0.025 | BDL | 0.05 |
| Oxamyl | 1.5 | BDL | 3.0 | Pacllobutrazol | 0.01 | BDL | 0.02 |
| Permethrin | 2.5 | BDL | 0.5 | Phenothrin | 2.5 | BDL | 0.05 |
| Phosmet | 0.2 | BDL | 0.02 | Piperonyl-butoxide | 0.5 | BDL | 0.25 |
| Pirimicarb | 0.01 | BDL | 0.02 | Prallethrin | 0.5 | BDL | 0.05 |
| Propiconazole | 0.5 | BDL | 0.1 | Propoxur | 0.01 | BDL | 0.02 |
| Pyraclostrobin | 0.01 | BDL | 0.02 | Pyrethrins | 0.25 | BDL | 0.05 |
| Pyridaben | 0.02 | BDL | 0.05 | Quintozene | 0.75 | BDL | 0.02 |
| Resmethrin | 0.05 | BDL | 0.1 | Spinetoram | 0.01 | BDL | 0.02 |
| Spinosad | 0.01 | BDL | 0.1 | Spirodiclofen | 0.2 | BDL | 0.25 |
| Spiromesifen | 1.5 | BDL | 3.0 | Spirotetramat | 0.01 | BDL | 0.1 |
| Spiroxamine | 0.5 | BDL | 0.1 | Tebuconazole | 0.01 | BDL | 0.05 |
| Tebufenozide | 0.01 | BDL | 0.02 | Teflubenzuron | 0.025 | BDL | 0.05 |
| Tetrachlorvinphos | 0.01 | BDL | 0.02 | Tetramethrin | 0.5 | BDL | 0.1 |
| Thiachloprid | 0.1 | BDL | 0.02 | Thiamethoxam | 0.01 | BDL | 0.02 |
| Thiophanate-methyl | 0.25 | BDL | 0.05 | Trifloxystrobin | 0.01 | BDL | 0.02 |

LOD Limit of Detection
 LOQ Limit of Quantification
 NT Not Reported
 ND Not Detected
 BDL Below Detection Limit
 <LOQ Detected
 >ULOL Above upper limit of linearity
 CFU/g Colony Forming Units per 1 gram
 TNTC Too Numerous to Count



Scan the QR code to verify authenticity.

Authorized Signature

 Nicole Taylor, MSc, Lab Director
 Mon, 17 Jan 2022 10:55:03 AM AST


Adele Joyce, QA Coordinator

RES - Residual Solvents Testing Analysis

Analyzed Jan 13, 2022 | Instrument HS/GC/MS | Method USP<467> Modified

| Analyte | LOD ug/g | Result ug/g | Limit ug/g | Analyte | LOD ug/g | Result ug/g | Limit ug/g |
|------------------------------|----------|-------------|------------|---------------------------------|----------|-------------|------------|
| Acetic Acid (AceAc) | 2500.0 | BDL | 5000 | Acetone (Aceto) | 1000.0 | BDL | 5000 |
| Anisole (Aniso) | 1000.0 | BDL | 5000 | 1-Butanol (Butan) | 1000.0 | BDL | 5000 |
| 2-Butanol (Butan) | 1000.0 | BDL | 5000 | Butyl Acetate () | 1000.0 | BDL | 5000 |
| Butane (But) | 1000.0 | BDL | 5000 | Tert-Butylmethyl Ether (Ter-Bu) | 100.0 | BDL | 5000 |
| Dimethyl Sulfoxide (DimSu) | 1000.0 | BDL | 5000 | Ethanol (Ethan) | 1000.0 | BDL | 5000 |
| Ethyl Acetate (EthAc) | 1000.0 | BDL | 5000 | Ethyl Ether (EthEt) | 1000.0 | BDL | 5000 |
| Ethyl Formate (EthFo) | 1000.0 | BDL | 5000 | Formic Acid (ForAc) | 1000.0 | BDL | 5000 |
| Heptane (Hepta) | 1000.0 | BDL | 5000 | Isobutyl Acetate (IsoAc) | 100.0 | BDL | 5000 |
| Isopropyl Acetate (IsoAc) | 100.0 | BDL | 5000 | Methyl Acetate (MetAc) | 100.0 | BDL | 5000 |
| 3-Methyl-1-Butanol (3-Buta) | 1000.0 | BDL | 5000 | Methylethyl ketone (MetKe) | 1000.0 | BDL | 5000 |
| 2-Methyl-1-Propanol (2-Prop) | 100.0 | BDL | 5000 | Pentane (Penta) | 1000.0 | BDL | 5000 |
| 1-Pentanol (Penta) | 1000.0 | BDL | 5000 | 1-Propanol (Propa) | 1000.0 | BDL | 5000 |
| 2-Propanol (Propa) | 1000.0 | BDL | 5000 | Propane (Prop) | 1000.0 | BDL | 5000 |
| Propyl Acetate (ProAc) | 500.0 | BDL | 5000 | Triethylamine (Triet) | 1000.0 | BDL | 5000 |

TER - Terpenes Testing Analysis

Analyzed Jan 11, 2022 | Instrument GC/FID | Method GC/FID

| Analyte | LOD mg/g | (%) | (mg/g) | Analyte | LOD mg/g | (%) | (mg/g) |
|------------------------------------|----------|------|--------|-----------------------------|----------|---------------|-------------------|
| α-Pinene (α-Pin) | 0.04 | 0.18 | 1.84 | Camphene (Cam) | 0.04 | 0.03 | 0.32 |
| Sabinene (Sab) | 0.07 | ND | ND | b-Pinene (b-Pin) | 0.06 | 0.32 | 3.15 |
| Myrcene (Myr) | 0.08 | 0.52 | 5.21 | α-Phellandrene (α-Phe) | 0.04 | ND | ND |
| 3-Carene (3-Car) | 0.01 | ND | ND | α-Terpinene (α-Ter) | 0.02 | ND | ND |
| p-Cymene (p-Cym) | 0.03 | ND | ND | Limonene (Lim) | 0.15 | 0.94 | 9.41 |
| Eucalyptol (Euc) | 0.03 | ND | ND | Ocimene (Oci) | 0.05 | ND | ND |
| g-Terpinene (g-Ter) | 0.04 | ND | ND | Sabinene Hydrate (SabHyd) | 0.03 | ND | ND |
| Terpinolene (Terp) | 0.01 | 0.07 | 0.67 | Linalool (Lin) | 0.05 | 0.10 | 1.02 |
| Fenchol (Fen) | 0.05 | 0.09 | 0.89 | Camphor (Cam) | 0.03 | ND | ND |
| Isoborneol (Isobo) | 0.01 | 0.07 | 0.70 | Borneol (Bor) | 0.02 | 0.08 | 0.84 |
| Menthol (Ment) | 0.05 | ND | ND | α-Terpineol (α-Terp) | 0.03 | 0.10 | 1.00 |
| Nerol (Nerl) | 0.01 | ND | ND | Pulegone (Pule) | 0.01 | ND | ND |
| Geraniol (Gera) | 0.02 | ND | ND | Geranyl acetate (Gera) | 0.02 | ND | ND |
| α-Cedrene (α-Ced) | 0.03 | ND | ND | b-Caryophyllene (b-Cary) | 0.09 | 1.30 | 13.03 |
| α-Humulene (α-Hum) | 0.09 | 0.40 | 4.00 | Valencene (Vale) | 0.03 | ND | ND |
| Nerolidol (cis and trans) (Ner) | 0.03 | 0.53 | 5.26 | Caryophyllene Oxide (CarOx) | 0.04 | 0.04 | 0.41 |
| Guaiol (Gua) | 0.03 | 0.04 | 0.36 | Cedrol (Ced) | 0.04 | 0.03 | 0.25 |
| α-bisabolol (α-Bbis) | 0.07 | 0.80 | 8.00 | | | | |
| Total Terpene Concentration | | | | | | 5.64 % | 56.37 mg/g |

FMI - Foreign Material Inspection Analysis

Analyzed Jan 11, 2022 | Instrument Microscope | Method

| Analyte / Limit | Result | Analyte / Limit | Result |
|------------------|----------|-----------------|--------|
| Foreign Material | Negative | | |

LOD Limit of Detection
 LOQ Limit of Quantification
 NT Not Reported
 ND Not Detected
 BDL Below Detection Limit
 <LOQ Detected
 >ULOL Above upper limit of linearity
 CFU/g Colony Forming Units per 1 gram
 TNTC Too Numerous to Count



Scan the QR code to verify authenticity.

Authorized Signature

S. N. Taylor

Nichole Taylor, MSc, Lab Director
 Mon, 17 Jan 2022 10:55:03 AM AST

Adele Joyce

Adele Joyce, QA Coordinator