

SAMPLE NAME: cbdMD Tincture 30 mL Orange 3000 mg

Infused, Hemp Infused

CULTIVATOR / MANUFACTURER

Business Name:

License Number:

Address:

DISTRIBUTOR / TESTED FOR

Business Name: cbdMD

License Number:

Address:

SAMPLE DETAIL

Batch Number: 11801T6

Sample ID: 210706R006

Date Collected: 07/06/2021

Date Received: 07/06/2021

Batch Size:

Sample Size: 1.0 units

Unit Mass: 30 milliliters per Unit

Serving Size: 1 milliliters per Serving



Scan QR code to verify authenticity of results.

CANNABINOID ANALYSIS - SUMMARY

Total THC: Not Detected

Total CBD: 3083.850 mg/unit

Sum of Cannabinoids: 3114.630 mg/unit

Total Cannabinoids: 3114.630 mg/unit

Total THC/CBD is calculated using the following formulas to take into account the loss of a carboxyl group during the decarboxylation step:
Total THC = $\Delta 9\text{THC} + (\text{THCa} \cdot 0.877)$
Total CBD = $\text{CBD} + (\text{CBDa} \cdot 0.877)$
Sum of Cannabinoids = $\Delta 9\text{THC} + \text{THCa} + \text{CBD} + \text{CBDa} + \text{CBG} + \text{CBGa} + \text{THCV} + \text{THCVa} + \text{CBC} + \text{CBCa} + \text{CBDV} + \text{CBDVa} + \Delta 8\text{THC} + \text{CBL} + \text{CBN}$
Total Cannabinoids = $(\Delta 9\text{THC} + 0.877 \cdot \text{THCa}) + (\text{CBD} + 0.877 \cdot \text{CBDa}) + (\text{CBG} + 0.877 \cdot \text{CBGa}) + (\text{THCV} + 0.877 \cdot \text{THCVa}) + (\text{CBC} + 0.877 \cdot \text{CBCa}) + (\text{CBDV} + 0.877 \cdot \text{CBDVa}) + \Delta 8\text{THC} + \text{CBL} + \text{CBN}$

Density: 0.952 g/mL

TERPENOID ANALYSIS - SUMMARY

39 TESTED, TOP 3 HIGHLIGHTED

Total Terpenoids: 0.0865%

● Limonene 0.865 mg/g ● α Pinene <LOQ ● Myrcene <LOQ

SAFETY ANALYSIS - SUMMARY

Pesticides: ND

Mycotoxins: ND

Residual Solvents: DETECTED

Heavy Metals: ND

Microbiology (PCR): ND

Microbiology (Plating): ND

For quality assurance purposes. Not a Pre-Harvest Hemp Lab Test Report. These results relate only to the sample included on this report. This report shall not be reproduced, except in full, without written approval of the laboratory.

Sample Certification: Action Limits used in this report are a compilation of guidance from state regulatory agencies in all states. Action limits for required tests are either state-specific, or the lower of any conflicting state regulations based upon the panel requested.

Decision Rule: Statements of conformity (e.g. Pass/Fail) to specifications are made in this report without taking measurement uncertainty into account. Where statements of conformity are made in this report, the following decision rules are applied: PASS - Results within limits/specifications, FAIL - Results exceed limits/specifications.

References: limit of detection (LOD), limit of quantification (LOQ), not detected (ND), not tested (NT), too numerous to count >250 cfu/plate (TNTC), colony-forming unit (cfu)

Randi Vuong
LOC verified by: Randi Vuong
Date: 07/11/2021

Josh Wurzer
Approved by: Josh Wurzer, President
Date: 07/11/2021



Cannabinoid Analysis

Tested by high-performance liquid chromatography with diode-array detection (HPLC-DAD).

Method: QSP 1157 - Analysis of Cannabinoids by HPLC-DAD

TOTAL THC: **Not Detected**

Total THC ($\Delta 9$ THC+0.877*THCa)

TOTAL CBD: **3083.850 mg/unit**

Total CBD (CBD+0.877*CBDA)

TOTAL CANNABINOIDS: **3114.630 mg/unit**

Total Cannabinoids (Total THC) + (Total CBD) + (Total CBG) + (Total THCV) + (Total CBC) + (Total CBDV) + $\Delta 8$ THC + CBL + CBN

TOTAL CBG: **14.070 mg/unit**

Total CBG (CBG+0.877*CBGa)

TOTAL THCV: **ND**

Total THCV (THCV+0.877*THCVa)

TOTAL CBC: **ND**

Total CBC (CBC+0.877*CBCa)

TOTAL CBDV: **12.840 mg/unit**

Total CBDV (CBDV+0.877*CBDVa)

CANNABINOID TEST RESULTS - 07/07/2021

| COMPOUND | LOD/LOQ (mg/mL) | MEASUREMENT UNCERTAINTY (mg/mL) | RESULT (mg/mL) | RESULT (%) |
|---------------------|-----------------|---------------------------------|----------------|------------|
| CBD | 0.080 / 0.220 | ± 4.9239 | 102.795 | 10.7978 |
| CBG | 0.040 / 0.120 | ± 0.0292 | 0.469 | 0.0493 |
| CBDV | 0.040 / 0.240 | ± 0.0224 | 0.428 | 0.0450 |
| CBN | 0.020 / 0.140 | ± 0.0048 | 0.129 | 0.0136 |
| $\Delta 9$ THC | 0.040 / 0.280 | N/A | ND | ND |
| $\Delta 8$ THC | 0.20 / 0.40 | N/A | ND | ND |
| THCa | 0.020 / 0.100 | N/A | ND | ND |
| THCV | 0.040 / 0.240 | N/A | ND | ND |
| THCVa | 0.040 / 0.380 | N/A | ND | ND |
| CBDA | 0.020 / 0.520 | N/A | ND | ND |
| CBDVa | 0.020 / 0.360 | N/A | ND | ND |
| CBGa | 0.040 / 0.140 | N/A | ND | ND |
| CBL | 0.060 / 0.200 | N/A | ND | ND |
| CBC | 0.060 / 0.200 | N/A | ND | ND |
| CBCa | 0.020 / 0.300 | N/A | ND | ND |
| SUM OF CANNABINOIDS | | | 103.821 mg/mL | 10.9056% |

Unit Mass: 30 milliliters per Unit / Serving Size: 1 milliliters per Serving

| | |
|---------------------------------|--------------------|
| $\Delta 9$ THC per Unit | ND |
| $\Delta 9$ THC per Serving | ND |
| Total THC per Unit | ND |
| Total THC per Serving | ND |
| CBD per Unit | 3083.850 mg/unit |
| CBD per Serving | 102.795 mg/serving |
| Total CBD per Unit | 3083.850 mg/unit |
| Total CBD per Serving | 102.795 mg/serving |
| Sum of Cannabinoids per Unit | 3114.630 mg/unit |
| Sum of Cannabinoids per Serving | 103.821 mg/serving |
| Total Cannabinoids per Unit | 3114.630 mg/unit |
| Total Cannabinoids per Serving | 103.821 mg/serving |

DENSITY TEST RESULT

0.952 g/mL

Tested 07/07/2021

Method: QSP 7870 - Sample Preparation





Terpenoid Analysis

Terpene analysis utilizing gas chromatography-flame ionization detection (GC-FID).

Method: QSP 1192 - Analysis of Terpenoids by GC-FID

TERPENOID TEST RESULTS - 07/08/2021

| COMPOUND | LOD/LOQ (mg/g) | MEASUREMENT UNCERTAINTY (mg/g) | RESULT (mg/g) | RESULT (%) |
|-------------------------|----------------|--------------------------------|-------------------|----------------|
| Limonene | 0.005 / 0.016 | ±0.0124 | 0.865 | 0.0865 |
| α Pinene | 0.005 / 0.017 | N/A | <LOQ | <LOQ |
| Myrcene | 0.008 / 0.025 | N/A | <LOQ | <LOQ |
| Camphor | 0.006 / 0.019 | N/A | <LOQ | <LOQ |
| α Bisabolol | 0.008 / 0.026 | N/A | <LOQ | <LOQ |
| Camphene | 0.005 / 0.015 | N/A | ND | ND |
| Sabinene | 0.004 / 0.014 | N/A | ND | ND |
| β Pinene | 0.004 / 0.014 | N/A | ND | ND |
| α Phellandrene | 0.006 / 0.020 | N/A | ND | ND |
| 3 Carene | 0.005 / 0.018 | N/A | ND | ND |
| α Terpinene | 0.005 / 0.017 | N/A | ND | ND |
| p-Cymene | 0.005 / 0.016 | N/A | ND | ND |
| Eucalyptol | 0.006 / 0.018 | N/A | ND | ND |
| Ocimene | 0.011 / 0.038 | N/A | ND | ND |
| γ Terpinene | 0.006 / 0.018 | N/A | ND | ND |
| Sabinene Hydrate | 0.006 / 0.022 | N/A | ND | ND |
| Fenchone | 0.009 / 0.028 | N/A | ND | ND |
| Terpinolene | 0.008 / 0.026 | N/A | ND | ND |
| Linalool | 0.009 / 0.032 | N/A | ND | ND |
| Fenchol | 0.010 / 0.034 | N/A | ND | ND |
| (-)-Isopulegol | 0.005 / 0.016 | N/A | ND | ND |
| Isoborneol | 0.004 / 0.012 | N/A | ND | ND |
| Borneol | 0.005 / 0.016 | N/A | ND | ND |
| Menthol | 0.008 / 0.025 | N/A | ND | ND |
| Terpineol | 0.016 / 0.055 | N/A | ND | ND |
| Nerol | 0.003 / 0.011 | N/A | ND | ND |
| Citronellol | 0.003 / 0.010 | N/A | ND | ND |
| R-(+)-Pulegone | 0.003 / 0.011 | N/A | ND | ND |
| Geraniol | 0.002 / 0.007 | N/A | ND | ND |
| Geranyl Acetate | 0.004 / 0.014 | N/A | ND | ND |
| α Cedrene | 0.005 / 0.016 | N/A | ND | ND |
| β Caryophyllene | 0.004 / 0.012 | N/A | ND | ND |
| trans-β-Farnesene | 0.008 / 0.025 | N/A | ND | ND |
| α Humulene | 0.009 / 0.029 | N/A | ND | ND |
| Valencene | 0.009 / 0.030 | N/A | ND | ND |
| Nerolidol | 0.009 / 0.028 | N/A | ND | ND |
| Caryophyllene Oxide | 0.010 / 0.033 | N/A | ND | ND |
| Guaiol | 0.009 / 0.030 | N/A | ND | ND |
| Cedrol | 0.008 / 0.027 | N/A | ND | ND |
| TOTAL TERPENOIDS | | | 0.865 mg/g | 0.0865% |

1 Limonene

A monoterpene with a fragrance that can be described as orangey, citrusy, sweet and tart. It is most commonly found in nature as D-Limonene and is a primary contributor to the distinct scent of orange peels, from which it is commonly derived. Found in numerous pines, red maple, silver maple, aspens, cottonwoods, hemlocks, sumac, cedar, junipers...etc.

2 α Pinene

One of two isomers of the monoterpene Pinene, the most abundant terpene in the natural world. It is responsible for the distinct aroma of many coniferous trees, particularly pines, from which it derives its name. It is a primary constituent of turpentine. Found in pines, rose gun, parsley, frankincense, guava, juniper, rosemary, nutmeg, blue gum, valerian...etc.

3 Myrcene

A monoterpene with a fragrance that can be described as peppery, spicy, herbal, floral and woody. Although it has a pleasant odor, it is typically used by the perfume industry as precursor for developing other fragrances. Found in hops, houttuynia, bay, thyme, lemon grass, mango, verbena, cardamom, citrus...etc.





Pesticide Analysis

Pesticide and plant growth regulator analysis utilizing high-performance liquid chromatography-mass spectrometry (HPLC-MS) or gas chromatography-mass spectrometry (GC-MS).

*GC-MS utilized where indicated.

Method: QSP 1212 - Analysis of Pesticides and Mycotoxins by LC-MS or QSP 1213 - Analysis of Pesticides by GC-MS

PESTICIDE TEST RESULTS - 07/08/2021 ND

| COMPOUND | LOD/LOQ (µg/g) | ACTION LIMIT (µg/g) | MEASUREMENT UNCERTAINTY (µg/g) | RESULT (µg/g) |
|---------------------|----------------|---------------------|--------------------------------|---------------|
| Abamectin | 0.03 / 0.10 | 0.3 | N/A | ND |
| Acephate | 0.02 / 0.07 | 5 | N/A | ND |
| Acequinocyl | 0.02 / 0.07 | 4 | N/A | ND |
| Acetamiprid | 0.02 / 0.05 | 5 | N/A | ND |
| Aldicarb | 0.03 / 0.08 | ≥ LOD | N/A | ND |
| Azoxystrobin | 0.02 / 0.07 | 40 | N/A | ND |
| Bifenazate | 0.01 / 0.04 | 5 | N/A | ND |
| Bifenthrin | 0.02 / 0.05 | 0.5 | N/A | ND |
| Boscalid | 0.03 / 0.09 | 10 | N/A | ND |
| Captan | 0.19 / 0.57 | 5 | N/A | ND |
| Carbaryl | 0.02 / 0.06 | 0.5 | N/A | ND |
| Carbofuran | 0.02 / 0.05 | ≥ LOD | N/A | ND |
| Chlorantraniliprole | 0.04 / 0.12 | 40 | N/A | ND |
| Chlordane* | 0.03 / 0.08 | ≥ LOD | N/A | ND |
| Chlorfenapyr* | 0.03 / 0.10 | ≥ LOD | N/A | ND |
| Chlorpyrifos | 0.02 / 0.06 | ≥ LOD | N/A | ND |
| Clofentezine | 0.03 / 0.09 | 0.5 | N/A | ND |
| Coumaphos | 0.02 / 0.07 | ≥ LOD | N/A | ND |
| Cyfluthrin | 0.12 / 0.38 | 1 | N/A | ND |
| Cypermethrin | 0.11 / 0.32 | 1 | N/A | ND |
| Daminozide | 0.02 / 0.07 | ≥ LOD | N/A | ND |
| DDVP (Dichlorvos) | 0.03 / 0.09 | ≥ LOD | N/A | ND |
| Diazinon | 0.02 / 0.05 | 0.2 | N/A | ND |
| Dimethoate | 0.03 / 0.08 | ≥ LOD | N/A | ND |
| Dimethomorph | 0.03 / 0.09 | 20 | N/A | ND |
| Ethoprop(hos) | 0.03 / 0.10 | ≥ LOD | N/A | ND |
| Etofenprox | 0.02 / 0.06 | ≥ LOD | N/A | ND |
| Etoxazole | 0.02 / 0.06 | 1.5 | N/A | ND |
| Fenhexamid | 0.03 / 0.09 | 10 | N/A | ND |
| Fenoxycarb | 0.03 / 0.08 | ≥ LOD | N/A | ND |
| Fenpyroximate | 0.02 / 0.06 | 2 | N/A | ND |
| Fipronil | 0.03 / 0.08 | ≥ LOD | N/A | ND |
| Flonicamid | 0.03 / 0.10 | 2 | N/A | ND |
| Fludioxonil | 0.03 / 0.10 | 30 | N/A | ND |
| Hexythiazox | 0.02 / 0.07 | 2 | N/A | ND |
| Imazalil | 0.02 / 0.06 | ≥ LOD | N/A | ND |
| Imidacloprid | 0.04 / 0.11 | 3 | N/A | ND |
| Kresoxim-methyl | 0.02 / 0.07 | 1 | N/A | ND |
| Malathion | 0.03 / 0.09 | 5 | N/A | ND |
| Metalaxyl | 0.02 / 0.07 | 15 | N/A | ND |
| Methiocarb | 0.02 / 0.07 | ≥ LOD | N/A | ND |

Continued on next page



Pesticide Analysis *Continued*

Pesticide and plant growth regulator analysis utilizing high-performance liquid chromatography-mass spectrometry (HPLC-MS) or gas chromatography-mass spectrometry (GC-MS).

*GC-MS utilized where indicated.

Method: QSP 1212 - Analysis of Pesticides and Mycotoxins by LC-MS or QSP 1213 - Analysis of Pesticides by GC-MS

PESTICIDE TEST RESULTS - 07/08/2021 *continued* ND

| COMPOUND | LOD/LOQ (µg/g) | ACTION LIMIT (µg/g) | MEASUREMENT UNCERTAINTY (µg/g) | RESULT (µg/g) |
|--------------------------|----------------|---------------------|--------------------------------|---------------|
| Methomyl | 0.03 / 0.10 | 0.1 | N/A | ND |
| Methyl parathion | 0.03 / 0.10 | ≥ LOD | N/A | ND |
| Mevinphos | 0.03 / 0.09 | ≥ LOD | N/A | ND |
| Myclobutanil | 0.03 / 0.09 | 9 | N/A | ND |
| Naled | 0.02 / 0.07 | 0.5 | N/A | ND |
| Oxamyl | 0.04 / 0.11 | 0.2 | N/A | ND |
| Paclobutrazol | 0.02 / 0.05 | ≥ LOD | N/A | ND |
| Pentachloronitrobenzene* | 0.03 / 0.09 | 0.2 | N/A | ND |
| Permethrin | 0.04 / 0.12 | 20 | N/A | ND |
| Phosmet | 0.03 / 0.10 | 0.2 | N/A | ND |
| Piperonylbutoxide | 0.02 / 0.07 | 8 | N/A | ND |
| Prallethrin | 0.03 / 0.08 | 0.4 | N/A | ND |
| Propiconazole | 0.02 / 0.07 | 20 | N/A | ND |
| Propoxur | 0.03 / 0.09 | ≥ LOD | N/A | ND |
| Pyrethrins | 0.04 / 0.12 | 1 | N/A | ND |
| Pyridaben | 0.02 / 0.07 | 3 | N/A | ND |
| Spinetoram | 0.02 / 0.07 | 3 | N/A | ND |
| Spinosad | 0.02 / 0.07 | 3 | N/A | ND |
| Spiromesifen | 0.02 / 0.05 | 12 | N/A | ND |
| Spirotetramat | 0.02 / 0.06 | 13 | N/A | ND |
| Spiroxamine | 0.03 / 0.08 | ≥ LOD | N/A | ND |
| Tebuconazole | 0.02 / 0.07 | 2 | N/A | ND |
| Thiacloprid | 0.03 / 0.10 | ≥ LOD | N/A | ND |
| Thiamethoxam | 0.03 / 0.10 | 4.5 | N/A | ND |
| Trifloxystrobin | 0.03 / 0.08 | 30 | N/A | ND |

Mycotoxin Analysis

Mycotoxin analysis utilizing high-performance liquid chromatography-mass spectrometry (HPLC-MS).

Method: QSP 1212 - Analysis of Pesticides and Mycotoxins by LC-MS

MYCOTOXIN TEST RESULTS - 07/07/2021 ND

| COMPOUND | LOD/LOQ (µg/kg) | ACTION LIMIT (µg/kg) | MEASUREMENT UNCERTAINTY (µg/kg) | RESULT (µg/kg) |
|-----------------|-----------------|----------------------|---------------------------------|----------------|
| Aflatoxin B1 | 2.0 / 6.0 | 5 | N/A | ND |
| Aflatoxin B2 | 1.8 / 5.6 | 20 | N/A | ND |
| Aflatoxin G1 | 1.0 / 3.1 | 20 | N/A | ND |
| Aflatoxin G2 | 1.2 / 3.5 | 20 | N/A | ND |
| Total Aflatoxin | | 20 | | ND |
| Ochratoxin A | 6.3 / 19.2 | 5 | N/A | ND |





Residual Solvents Analysis

Residual Solvent analysis utilizing gas chromatography-mass spectrometry (GC-MS).

Method: QSP 1204 - Analysis of Residual Solvents by GC-MS

RESIDUAL SOLVENTS TEST RESULTS - 07/08/2021 DETECTED

| COMPOUND | LOD/LOQ (µg/g) | ACTION LIMIT (µg/g) | MEASUREMENT UNCERTAINTY (µg/g) | RESULT (µg/g) |
|--------------------|----------------|---------------------|--------------------------------|---------------|
| Propane | 10 / 20 | 5000 | N/A | ND |
| Butane | 10 / 50 | 5000 | N/A | ND |
| Pentane | 20 / 50 | 5000 | N/A | <LOQ |
| Hexane | 2 / 5 | 290 | N/A | ND |
| Heptane | 20 / 60 | 5000 | N/A | ND |
| Benzene | 0.03 / 0.09 | 1 | N/A | ND |
| Toluene | 7 / 21 | 890 | N/A | ND |
| Total Xylenes | 50 / 160 | 2170 | N/A | ND |
| Methanol | 50 / 200 | 3000 | N/A | ND |
| Ethanol | 20 / 50 | 5000 | N/A | ND |
| Isopropyl Alcohol | 10 / 40 | 5000 | N/A | ND |
| Acetone | 20 / 50 | 5000 | N/A | ND |
| Ethyl ether | 20 / 50 | 5000 | N/A | ND |
| Ethylene Oxide | 0.3 / 0.8 | 1 | N/A | ND |
| Ethyl acetate | 20 / 60 | 5000 | N/A | ND |
| Chloroform | 0.1 / 0.2 | 1 | N/A | ND |
| Methylene chloride | 0.3 / 0.9 | 1 | N/A | ND |
| Trichloroethylene | 0.1 / 0.3 | 1 | N/A | ND |
| 1,2-Dichloroethane | 0.05 / 0.1 | 1 | N/A | ND |
| Acetonitrile | 2 / 7 | 410 | N/A | ND |



Heavy Metals Analysis

Heavy metal analysis utilizing inductively coupled plasma-mass spectrometry (ICP-MS).

Method: QSP 1160 - Analysis of Heavy Metals by ICP-MS

HEAVY METALS TEST RESULTS - 07/07/2021 ND

| COMPOUND | LOD/LOQ (µg/g) | ACTION LIMIT (µg/g) | MEASUREMENT UNCERTAINTY (µg/g) | RESULT (µg/g) |
|----------|----------------|---------------------|--------------------------------|---------------|
| Arsenic | 0.02 / 0.1 | 0.42 | N/A | ND |
| Cadmium | 0.02 / 0.05 | 0.27 | N/A | ND |
| Lead | 0.04 / 0.1 | 0.5 | N/A | ND |
| Mercury | 0.002 / 0.01 | 0.4 | N/A | ND |





Microbiology Analysis

PCR AND PLATING

Analysis conducted by polymerase chain reaction (PCR) and fluorescence detection of microbiological contaminants.

Method: QSP 1221 - Analysis of Microbiological Contaminants

MICROBIOLOGY TEST RESULTS (PCR) - 07/11/2021 ND

| COMPOUND | ACTION LIMIT | RESULT |
|---|--------------|--------|
| Shiga toxin-producing <i>Escherichia coli</i> | Detect | ND |
| <i>Salmonella</i> spp. | Detect | ND |
| <i>Listeria monocytogenes</i> | Detect | ND |

Analysis conducted by 3M™ Petrifilm™ and plate counts of microbiological contaminants.

Method: QSP 6794 - Plating with 3M™ Petrifilm™

MICROBIOLOGY TEST RESULTS (PLATING) - 07/11/2021 ND

| COMPOUND | ACTION LIMIT (cfu/g) | RESULT (cfu/g) |
|------------------------|-------------------------|-------------------|
| Total Aerobic Bacteria | 100 | ND |
| Total Yeast and Mold | 10 | ND |

