Hemp Quality Assurance Testing
CERTIFICATE OF ANALYSIS

DATE ISSUED 01/22/2022

SAMPLE NAME: cbdMD Tincture 30 mL Berry 750 mg
Infused, Hemp Infused

CULTIVATOR / MANUFACTURER
Business Name:
License Number:
Address:

DISTRIBUTOR / TESTED FOR
Business Name: cbdMD
License Number:
Address:

SAMPLE DETAIL
Batch Number: 20131Q2
Sample ID: 220117N016

Date Collected: 01/17/2022
Date Received: 01/17/2022
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: 850.650 mg/unit

Sum of Cannabinoids: 863.100 mg/unit

Total Cannabinoids: 863.100 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 = Δ9THC + (THCa (0.877))
Total CBD = CBD + (CBDa (0.877))
Sum of Cannabinoids = Δ9THC + THCa + CBD + CBDa + CBG + CBGa + THCV + THCVa + CBC + CBCa + CBDV + CBDVa + Δ8THC + CBL + CBN
Total Cannabinoids = (Δ9THC+0.877*THCa) + (CBD+0.877*CBDa) + (CBG+0.877*CBGa) + (THCV+0.877*THCVa) + (CBC+0.877*CBCa) + (CBDV+0.877*CBDVa) + Δ8THC + CBL + CBN

Density: 0.946 g/mL

TERPENOID ANALYSIS - SUMMARY

39 TESTED, TOP 3 HIGHLIGHTED

Total Terpenoids: 0.1108%

Limonene 0.762 mg/g | α Bisabolol 0.308 mg/g | Linalool 0.038 mg/g

SAFETY ANALYSIS - SUMMARY

Pesticides: PASS
Mycotoxins: PASS
Residual Solvents: PASS
Heavy Metals: PASS
Microbiology (PCR): PASS
Microbiology (Plating): PASS
Foreign Material: PASS

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)

LQC verified by: Michael Pham
Date: 01/22/2022

Approved by: Josh Wurzer, President
Date: 01/22/2022

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 (Δ9THC+0.877*THCa)

TOTAL CBD: 850.650 mg/unit
Total CBD (CBD+0.877*CBDa)

TOTAL CANNABINOIDS: 863.100 mg/unit
Total Cannabinoids (Total THC) + (Total CBD) + (Total CBG) + (Total THCV) + (Total CBC) + (Total CBDV) + Δ8THC + CBL + CBN

TOTAL CBG: 7.170 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: 2.670 mg/unit
Total CBDV (CBDV+0.877*CBDVa)

CANNABINOID TEST RESULTS - 01/19/2022

COMPOUND	LOD/LOQ (mg/mL)	MEASUREMENT UNCERTAINTY (mg/mL)	RESULT (mg/mL)	RESULT (%)
CBD	*0.004 / 0.011*	*±1.3582*	28.355	2.9974
CBG	*0.002 / 0.006*	*±0.0149*	0.239	0.0253
CBDV	*0.002 / 0.012*	*±0.0047*	0.089	0.0094
CBN	*0.001 / 0.007*	*±0.0032*	0.087	0.0092
Δ9THC	*0.002 / 0.014*	*N/A*	ND	ND
THCa	*0.001 / 0.005*	*N/A*	ND	ND
Δ8THC	*0.01 / 0.02*	*N/A*	ND	ND
THCV	*0.002 / 0.012*	*N/A*	ND	ND
THCVa	*0.002 / 0.019*	*N/A*	ND	ND
CBDa	*0.001 / 0.026*	*N/A*	ND	ND
CBDVa	*0.001 / 0.018*	*N/A*	ND	ND
CBGa	*0.002 / 0.007*	*N/A*	ND	ND
CBL	*0.003 / 0.010*	*N/A*	ND	ND
CBC	*0.003 / 0.010*	*N/A*	ND	ND
CBCa	*0.001 / 0.015*	*N/A*	ND	ND
SUM OF CANNABINOIDS			28.770 mg/mL	3.0412%

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

Δ9THC per Unit	ND
Δ9THC per Serving	ND
Total THC per Unit	ND
Total THC per Serving	ND
CBD per Unit	850.650 mg/unit
CBD per Serving	28.355 mg/serving
Total CBD per Unit	850.650 mg/unit
Total CBD per Serving	28.355 mg/serving
Sum of Cannabinoids per Unit	863.100 mg/unit
Sum of Cannabinoids per Serving	28.770 mg/serving
Total Cannabinoids per Unit	863.100 mg/unit
Total Cannabinoids per Serving	28.770 mg/serving

DENSITY TEST RESULT

0.946 g/mL

Tested 01/19/2022

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

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 Bisabolol
A sesquiterpene alcohol with a fragrance that can be described as floral, peppery, sweet and clean. Found in chamomile, figwort, yarrow, skullcaps, lavender, ironwort, germander...etc.

3 Linalool
A monoterpenoid alcohol with a fragrance that can be described as spicy, waxy, citrus and floral. It is commonly used as an insecticide against cockroaches, flies, fleas and other insects. Found in bail, lavender, cinnamon, hops, mugwort, goldenrods...etc.

TERPENOID TEST RESULTS - 01/20/2022

COMPOUND	LOD/LOQ (mg/g)	MEASUREMENT UNCERTAINTY (mg/g)	RESULT (mg/g)	RESULT (%)
Limonene	*0.005 / 0.016*	*±0.0109*	**0.762**	**0.0762**
α Bisabolol	*0.008 / 0.026*	*±0.0164*	**0.308**	**0.0308**
Linalool	*0.009 / 0.032*	*±0.0014*	**0.038**	**0.0038**
p-Cymene	*0.005 / 0.016*	*N/A*	**<LOQ**	**<LOQ**
α Cedrene	*0.005 / 0.016*	*N/A*	**<LOQ**	**<LOQ**
α Pinene	*0.005 / 0.017*	*N/A*	**ND**	**ND**
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**
Myrcene	*0.008 / 0.025*	*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**
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**
Fenchol	*0.010 / 0.034*	*N/A*	**ND**	**ND**
(-)-Isopulegol	*0.005 / 0.016*	*N/A*	**ND**	**ND**
Camphor	*0.006 / 0.019*	*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**
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			**1.108 mg/g**	**0.1108%**

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

Exclusions[1] see last page

Exclusions[2] see last page

PESTICIDE TEST RESULTS - 01/20/2022 PASS

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

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 - 01/20/2022 *continued* PASS

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

Mycotoxin Analysis

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

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

Exclusions[3] see last page

MYCOTOXIN TEST RESULTS - 01/19/2022 PASS

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

Residual Solvents Analysis

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

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

Exclusions[4] see last page

RESIDUAL SOLVENTS TEST RESULTS - 01/20/2022 PASS

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

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 - 01/19/2022 PASS

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

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) - 01/22/2022 PASS

COMPOUND	ACTION LIMIT	RESULT	RESULT
Shiga toxin-producing *Escherichia coli*	Not Detected in 1g	ND	PASS
Salmonella spp.	Not Detected in 1g	ND	PASS
Listeria monocytogenes	Not Detected in 1g	ND	PASS

Microbiology Analysis *Continued*

PCR AND PLATING

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

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

MICROBIOLOGY TEST RESULTS (PLATING) - 01/22/2022 PASS

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

Foreign Material Analysis

Visual analysis includes, but is not limited to, sand, soil, cinders, dirt, mold, hair, insect fragments, and mammalian excreta.

Method: QSP 1226 - Analysis of Foreign Material in Cannabis and Cannabis Products

FOREIGN MATERIAL TEST RESULTS - 01/18/2022 PASS

COMPOUND	ACTION LIMIT	RESULT
Total Sample Area Covered by Sand, Soil, Cinders, or Dirt	*>25%*	PASS
Total Sample Area Covered by Mold	*>25%*	PASS
Total Sample Area Covered by an Imbedded Foreign Material	*>25%*	PASS
Insect Fragment Count	*> 1 per 3 grams*	PASS
Hair Count	*> 1 per 3 grams*	PASS
Mammalian Excreta Count	*> 1 per 3 grams*	PASS

NOTES

1. Exclusions: QSP 1212 - Sample Certification: California Code of Regulation Title 4 Division 19
2. Exclusions: QSP 1213 - Sample Certification: California Code of Regulation Title 4 Division 19
3. Exclusions: Sample Certification: California Code of Regulation Title 4 Division 19
4. Exclusions: Sample Certification: California Code of Regulation Title 4 Division 19