

## **Hemp Quality Assurance Testing**

## **CERTIFICATE OF ANALYSIS**

**DATE ISSUED 04/23/2021** 

#### SAMPLE NAME: cbdMD Tincture 30 mL Berry 3000 mg

Infused, Non-Inhalable

**CULTIVATOR / MANUFACTURER** 

**Business Name:** License Number:

Address:

SAMPLE DETAIL

Batch Number: 11031Q6 Sample ID: 210415R003

**DISTRIBUTOR / TESTED FOR** 

Business Name: cbdMD License Number: Address:

Date Collected: 04/15/2021 Date Received: 04/15/2021

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: 3212.520 mg/unit

Total Cannabinoids: 3231.810 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 =  $\Delta$ 9THC + (THCa (0.877))

Total CBD = CBD + (CBDa (0.877))

Sum of Cannabinoids =  $\Delta$ 9THC + THCa + CBD + CBDa + CBG + CBGa + Sum of Cannabinoids: 3231.810 mg/unit 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

Moisture: NT

Density: 0.9542 g/mL

Viscosity: NT

#### TERPENOID ANALYSIS - SUMMARY

39 TESTED, TOP 3 HIGHLIGHTED

Total Terpenoids: 0.3143%

Linalool 1.207 mg/g

 $\alpha$  Bisabolol 0.422 mg/g

#### **SAFETY ANALYSIS - SUMMARY**

∆9THC per Unit: **⊘PASS** 

Pesticides: PASS

Heavy Metals: PASS

Foreign Material: NT

Mycotoxins: PASS

Microbiology (PCR): PASS

Water Activity: NT

Residual Solvents: PASS

Microbiology (Plating): ND

Vitamin E: NT

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.

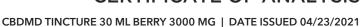
Sample Certification: California Code of Regulations Title 16 Effect Date January 16, 2019. Authority: Section 26013, Business and Professions Code. Reference: Sections 26100, 26104 and 26110, Business and Professions Code.

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)



# CERTIFICATE OF 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: 3212.520 mg/unit

Total CBD (CBD+0.877\*CBDa)

TOTAL CANNABINOIDS: 3231.810 mg/unit

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

TOTAL CBG: 12.540 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: 5.670 mg/unit
Total CBDV (CBDV+0.877\*CBDVa)

#### **CANNABINOID TEST RESULTS - 04/17/2021**

	COMPOUND	LOD/LOQ (mg/mL)	MEASUREMENT UNCERTAINTY (mg/mL)	RESULT (mg/mL)	RESULT (%)
Ī	CBD	0.004 / 0.011	±5.1293	107.084	11.2224
	CBG	0.002 / 0.006	±0.0260	0.418	0.0438
	CBDV	0.002/0.012	±0.0099	0.189	0.0198
	CBN	0.001 / 0.007	±0.0013	0.036	0.0038
	Δ9ΤΗC	0.002/0.014	N/A	ND	ND
	Δ8ΤΗC	0.01 / 0.02	N/A	ND	ND
	THCa	0.001 / 0.005	N/A	ND	ND
	THCV	0.002 / 0.012	N/A	ND	ND
t	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
	СВС	0.003 / 0.010	N/A	ND	ND
	CBCa	0.001 / 0.015	N/A	ND	ND
	SUM OF CANNAB	INOIDS		107.727 mg/mL	11.2898%

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

Δ9THC per Unit	1120 per-package limit	ND	PASS
Δ9THC per Serving		ND	
Total THC per Unit		ND	
Total THC per Serving		ND	
CBD per Unit		3212.520 mg/unit	
CBD per Serving		107.084 mg/serving	
Total CBD per Unit		3212.520 mg/unit	
Total CBD per Serving		107.084 mg/serving	
Sum of Cannabinoids per Unit		3231.810 mg/unit	
Sum of Cannabinoids per Serving		107.727 mg/serving	
Total Cannabinoids per Unit		3231.810 mg/unit	
Total Cannabinoids per Serving		107.727 mg/serving	

MOISTURE TEST RESULT	DENSITY TEST RESULT	VISCOSITY TEST RESULT
Not Tested	0.9542 g/mL	Not Tested
	Tested 04/17/2021	
	<b>Method:</b> QSP 7870 - Sample Preparation	





## **CERTIFICATE OF ANALYSIS**







# **Terpenoid Analysis**

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

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



#### 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.



## $\beta$ Caryophyllene

A sesquiterpene with a fragrance that can be described as spicy, woody, dry, dusty and mildly sweet. It was one of the first organic compounds to fully synthesized in a laboratory and plays a role in the endocannabinoid system as it is a functional CB<sub>2</sub> receptor agonist. Found in black pepper, clove, hops, rosemary, black-jack, perilla, spicebush, Indian pennywort, celery, frankincense, vitex, parsley, marigold, tamarind...etc.



## $\alpha$ 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.



COMPOUND	LOD/LOQ (mg/g)	MEASUREMENT UNCERTAINTY (mg/g)	RESULT (mg/g)	RESULT (%)
Linalool	0.009/0.032	±0.0459	1.207	0.1207
$\beta$ Caryophyllene	0.004/0.012	±0.0171	0.479	0.0479
$\alpha$ Bisabolol	0.008 / 0.026	±0.0225	0.422	0.0422
Ocimene	0.011/0.038	±0.0083	0.259	0.0259
α Humulene	0.009/0.029	±0.0052	0.162	0.0162
trans-β-Farnesene	0.008 / 0.025	±0.0056	0.157	0.0157
Guaiol	0.009/0.030	±0.0063	0.134	0.0134
Caryophyllene Oxide	0.010/0.033	±0.0053	0.116	0.0116
Terpineol	0.016 / 0.055	±0.0040	0.065	0.0065
Geranyl Acetate	0.004/0.014	±0.0020	0.048	0.0048
Eucalyptol	0.006/0.018	±0.0009	0.034	0.0034
Borneol	0.005/0.016	±0.0013	0.030	0.0030
Limonene	0.005/0.016	±0.0003	0.022	0.0022
Geraniol	0.002/0.007	±0.0004	0.008	0.0008
α Pinene	0.005/0.017	N/A	<loq< th=""><th><loq< th=""></loq<></th></loq<>	<loq< th=""></loq<>
β Pinene	0.004/0.014	N/A	<loq< th=""><th><loq< th=""></loq<></th></loq<>	<loq< th=""></loq<>
Myrcene	0.008 / 0.025	N/A	<loq< th=""><th><loq< th=""></loq<></th></loq<>	<loq< th=""></loq<>
γTerpinene	0.006/0.018	N/A	<loq< th=""><th><loq< th=""></loq<></th></loq<>	<loq< th=""></loq<>
Fenchol	0.010/0.034	N/A	<loq< th=""><th><loq< th=""></loq<></th></loq<>	<loq< th=""></loq<>
Valencene	0.009/0.030	N/A	<loq< th=""><th><loq< th=""></loq<></th></loq<>	<loq< th=""></loq<>
Camphene	0.005 / 0.015	N/A	ND	ND
Sabinene	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
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
(-)-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
Menthol	0.008 / 0.025	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
α Cedrene	0.005/0.016	N/A	ND	ND
Nerolidol	0.009/0.028	N/A	ND	ND
Cedrol	0.008 / 0.027	N/A	ND	ND
TOTAL TERPENOIDS			3.143 mg/g	0.3143%











# **Pesticide Analysis**

#### **CATEGORY 1 AND 2 PESTICIDES**

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

## CATEGORY 1 PESTICIDE TEST RESULTS - 04/21/2021 PASS

	COMPOUND	LOD/LOQ (µg/g)	ACTION LIMIT (µg/g)	MEASUREMENT UNCERTAINTY (μg/g)	RESULT (µg/g)	RESULT
Ī	Aldicarb	0.03 / 0.08	≥LOD	N/A	ND	PASS
Ī	Carbofuran	0.02 / 0.05	≥LOD	N/A	ND	PASS
	Chlordane*	0.03 / 0.08	≥LOD	N/A	ND	PASS
Ī	Chlorfenapyr*	0.03 / 0.10	≥LOD	N/A	ND	PASS
Ī	Chlorpyrifos	0.02 / 0.06	≥LOD	N/A	ND	PASS
	Coumaphos	0.02 / 0.07	≥LOD	N/A	ND	PASS
Ī	Daminozide	0.02 / 0.07	≥LOD	N/A	ND	PASS
Ī	DDVP (Dichlorvos)	0.03 / 0.09	≥LOD	N/A	ND	PASS
	Dimethoate	0.03 / 0.08	≥LOD	N/A	ND	PASS
Ī	Ethoprop(hos)	0.03 / 0.10	≥LOD	N/A	ND	PASS
	Etofenprox	0.02 / 0.06	≥LOD	N/A	ND	PASS
	Fenoxycarb	0.03 / 0.08	≥LOD	N/A	ND	PASS
Ī	Fipronil	0.03 / 0.08	≥LOD	N/A	ND	PASS
Ī	lmazalil	0.02 / 0.06	≥LOD	N/A	ND	PASS
	Methiocarb	0.02 / 0.07	≥LOD	N/A	ND	PASS
Ī	Methyl parathion	0.03 / 0.10	≥LOD	N/A	ND	PASS
Ī	Mevinphos	0.03 / 0.09	≥LOD	N/A	ND	PASS
	Paclobutrazol	0.02 / 0.05	≥LOD	N/A	ND	PASS
	Propoxur	0.03 / 0.09	≥LOD	N/A	ND	PASS
4	Spiroxamine	0.03 / 0.08	≥LOD	N/A	ND	PASS
	Thiacloprid	0.03 / 0.10	≥LOD	N/A	ND	PASS

### CATEGORY 2 PESTICIDE TEST RESULTS - 04/21/2021 PASS

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
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
Chlorantraniliprole	0.04 / 0.12	40	N/A	ND	PASS
Clofentezine	0.03/0.09	0.5	N/A	ND	PASS
Cyfluthrin	0.12 / 0.38	1	N/A	ND	PASS
Cypermethrin	0.11/0.32	1	N/A	ND	PASS
Diazinon	0.02 / 0.05	0.2	N/A	ND	PASS
Dimethomorph	0.03/0.09	20	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
Fenpyroximate	0.02 / 0.06	2	N/A	ND	PASS



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# Pesticide Analysis Continued

#### **CATEGORY 1 AND 2 PESTICIDES**

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

#### CATEGORY 2 PESTICIDE TEST RESULTS - 04/21/2021 continued PASS

COMPOUND	LOD/LOQ (µg/g)	ACTION LIMIT (µg/g)	MEASUREMENT UNCERTAINTY (μg/g)	RESULT (µg/g)	RESULT
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
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
Methomyl	0.03 / 0.10	0.1	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
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
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
Tebuconazole	0.02 / 0.07	2	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).

 $\begin{tabular}{ll} \textbf{Method:} QSP~1212 - Analysis~of~Pesticides~and~Mycotoxins~by\\ LC-MS \end{tabular}$ 

### MYCOTOXIN TEST RESULTS - 04/21/2021 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





## **CERTIFICATE OF ANALYSIS**

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# **Residual Solvents Analysis**

#### **CATEGORY 1 AND 2 RESIDUAL SOLVENTS**

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

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

## CATEGORY 1 RESIDUAL SOLVENTS TEST RESULTS - 04/19/2021 PASS

COMPOUND	LOD/LOQ (µg/g)	ACTION LIMIT (µg/g)	MEASUREMENT UNCERTAINTY (μg/g)	RESULT (μg/g)	RESULT
1,2-Dichloroethane	0.05 / 0.1	1	N/A	ND	PASS
Benzene	0.03 / 0.09	1	N/A	ND	PASS
Chloroform	0.1 / 0.2	1	N/A	ND	PASS
Ethylene Oxide	0.3 / 0.8	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

#### CATEGORY 2 RESIDUAL SOLVENTS TEST RESULTS - 04/19/2021 PASS

Acetone	20/50	5000	N/A	ND	PASS
Acetonitrile	2/7	410	N/A	ND	PASS
Butane	10/50	5000	N/A	ND	PASS
Ethanol	20/50	5000	N/A	ND	PASS
Ethyl acetate	20/60	5000	N/A	ND	PASS
Ethyl ether	20/50	5000	N/A	ND	PASS
Heptane	20 / 60	5000	N/A	ND	PASS
Hexane	2/5	290	N/A	ND	PASS
Isopropyl Alcohol	10/40	5000	N/A	ND	PASS
Methanol	50/200	3000	N/A	ND	PASS
Pentane	20/50	5000	N/A	ND	PASS
Propane	10/20	5000	N/A	ND	PASS
Toluene	7/21	890	N/A	ND	PASS
Total Xylenes	50 / 160	2170	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 - 04/17/2021 PASS

COMPOUND	LOD/LOQ (µg/g)	ACTION LIMIT (μg/g)	MEASUREMENT UNCERTAINTY (μg/g)	RESULT (µg/g)	RESULT
Cadmium	0.02 / 0.05	0.5	N/A	ND	PASS
Lead	0.04 / 0.1	0.5	N/A	ND	PASS
Arsenic	0.02 / 0.1	1.5	N/A	ND	PASS
Mercury	0.002 / 0.01	3	N/A	ND	PASS





# **Hemp Quality Assurance Testing**

## **CERTIFICATE OF ANALYSIS**

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# **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

Analysis conducted by  $3M^{\text{TM}}$  Petrifilm and plate counts of microbiological contaminants.

Method: QSP 6794 - Plating with 3M<sup>™</sup> Petrifilm<sup>™</sup>

## MICROBIOLOGY TEST RESULTS (PCR) - 04/21/2021 PASS

COMPOUND	ACTION LIMIT	RESULT	RESULT
Shiga toxin-producing Escherichia coli	Detect	ND	PASS
Salmonella spp.	Detect	ND	PASS
Listeria monocytogenes		ND	

#### MICROBIOLOGY TEST RESULTS (PLATING) - 04/21/2021 ND

COMPOUND	RESULT (cfu/g)
Total Aerobic Bacteria	ND
Total Yeast and Mold	ND

#### **NOTES**

COA amended, update to results.

