

# CERTIFICATE OF ANALYSIS

**PRODUCT NAME:** Certified Organic CBD Tincture - Natural  
**PRODUCT STRENGTH:** 450 mg  
**TINCTURE BATCH:** 42069C  
**BEST BY DATE:** 29 10 2024  
**HEMP EXTRACT LOT:** C0916-001

*\*Click on the links to view third-party reports\**

### Physical Attributes

Test	Method	Specification	Results
Color	Joy Internal	Golden to Amber	PASS
Odor	Joy Internal	Characteristic - Olive and Hemp	PASS
Appearance	Joy Internal	Golden to Amber oil in brown glass bottle with dropper.	PASS
Primary Package Eval.	Joy Internal	Container clean and free of filth. Container caps tight and shrink bands intact	PASS
Secondary Package Eval.	Joy Internal	Labeling Compliance Checked, Cartons sturdy and clean. Sufficient cushion material exists. Box taped and secure.	PASS

### Review of Third-Party Analysis

Panel	Method	Specification	Results*	Pass/Fail
<b>Potency - Total CBD</b>	HPLC-UV DAD	*LOQ: $\geq 450$ mg / bottle	<b>7.0a [</b>	PASS
<b>Potency - D9-THC</b>	HPLC-UV DAD	LOQ: 10 ppm (.001-0.3%)	<b>ND</b>	PASS
<b>Expanded Pesticide Panel</b>	HPLC-QQQ	LOQ: Complies with CDPHE 6 CCR 1010-21 Industrial Hemp Extract	<b>Below LOQ</b>	PASS
<b>Microbial</b> Escherichia coli (STEC)	PCR	Complies with CDPHE 6 CCR 1010-21 - LOQ 1 **CFU/25 gram	<b>Absent</b>	PASS
<b>Microbial</b> Salmonella	PCR	Complies with CDPHE 6 CCR 1010-21 - LOQ 1 CFU/25 gram	<b>Absent</b>	PASS
<b>Microbial</b> Yeast and Mold	Culture Plating	Complies with CDPHE 6 CCR 1010-21 - LOQ $10^2$ CFU/gram	<b>Below LOQ</b>	PASS
<b>Microbial</b> Total Coliforms*	Culture Plating	Complies with CDPHE 6 CCR 1010-21 - LOQ $10^2$ CFU/gram	<b>Below LOQ</b>	PASS
<b>Microbial</b> Total Aerobic Count*	Culture Plating	Complies with CDPHE 6 CCR 1010-21 - LOQ $10^3$ CFU/gram	<b>Below LOQ</b>	PASS
<b>Heavy Metals</b>	ICP-MS	Arsenic (As): $\leq 1.5$ ppm† Cadmium (Cd): $\leq 0.5$ ppm Lead (Pb): $\leq 0.5$ ppm Mercury (Hg): $\leq 1.5$ ppm	<b>Below LOQ</b>	PASS
<b>Mycotoxins</b>	ICP-MS	Total Aflatoxins $< 20$ ppb†† Aflatoxin B1 $< 7$ ppb Ochratoxin $< 7$ ppb	<b>Below LOQ</b>	PASS
<b>Residual Solvents</b>	GC-HS-MSD	LOQ: Complies with CDPHE 6 CCR 1010-21 Industrial Hemp Extract	<b>Below LOQ</b>	PASS

\*Level of Quantification  
 \*\*Colony Forming Units per Gram  
 † Parts Per Million †† Part Per Billion

Values expressed in scientific notation.  
 Examples:  
 $10^2=100$   
 $10^3=1,000$

Quality Certified Keegan Schlittler 03/15/2022  
 Keegan Schlittler Date  
 Quality Assurance Manager

**27533**


 Batch ID or Lot Number: **C0916-001**      Test: **Potency**      Reported: **9/27/21**


 Matrix:      Test ID:      Started:      USDA License:  
 Solution      T000164231      9/22/21      N/A

 Status:      Method:      Received:      Sampler ID:  
 N/A      TM14 (HPLC-DAD): Potency - Standard Cannabinoid Analysis (Colorado Panel)      09/20/2021 @ 10:42 AM      N/A

## CANNABINOID PROFILE

Compound	LOD (mg/mL)	LOQ (mg/mL)	Result (mg/mL)	Result (mg/g)	Notes
Delta 9-Tetrahydrocannabinolic acid (THCA-A)	0.145	0.491	ND	ND	Density = 0.92g/mL
Delta 9-Tetrahydrocannabinol (Delta 9THC)	0.163	0.555	ND	ND	
Cannabidiolic acid (CBDA)	0.199	0.523	ND	ND	
Cannabidiol (CBD)	0.194	0.510	18.568	20.18	
Delta 8-Tetrahydrocannabinol (Delta 8THC)	0.180	0.611	ND	ND	
Cannabinolic Acid (CBNA)	0.103	0.350	ND	ND	
Cannabinol (CBN)	0.047	0.160	ND	ND	
Cannabigerolic acid (CBGA)	0.151	0.513	ND	ND	
Cannabigerol (CBG)	0.036	0.123	0.870	0.95	
Tetrahydrocannabivarinic Acid (THCVA)	0.128	0.433	ND	ND	
Tetrahydrocannabivarin (THCV)	0.033	0.112	ND	ND	
Cannabidivarinic Acid (CBDVA)	0.083	0.218	ND	ND	
Cannabidivarin (CBDV)	0.046	0.121	0.119*	0.13*	
Cannabichromenic Acid (CBCA)	0.058	0.198	ND	ND	
Cannabichromene (CBC)	0.064	0.216	ND	ND	
<b>Total Cannabinoids</b>			<b>19.557</b>	<b>21.26</b>	
Total Potential THC**			ND	ND	
Total Potential CBD**			18.568	20.18	

  
 Sam Smith  
 27-Sep-2021  
 01:23 PM

  
 Daniel Weidensaul  
 27-Sep-21  
 1:27 PM

PREPARED BY / DATE

APPROVED BY / DATE

### Definitions

% = % (w/w) = Percent (Weight of Analyte / Weight of Product)

\* Indicates a value below the Limit of Quantitation (LOQ) and above the Limit of Detection (LOD).

\*\* Total Potential THC/CBD is calculated using the following formulas to take into account the loss of a carboxyl group during decarboxylation step.

$$\text{Total THC} = \text{THC} + (\text{THCa} * (0.877)) \text{ and}$$

$$\text{Total CBD} = \text{CBD} + (\text{CBDa} * (0.877))$$

Total Cannabinoids result reflects the absolute sum of all cannabinoids detected.

ND = None Detected (Defined by Dynamic Range of the method)

Testing results are based solely upon the sample submitted to Botanacor Laboratories, LLC, in the condition it was received. Botanacor Laboratories, LLC warrants that all analytical work is conducted professionally in accordance with all applicable standard laboratory practices using validated methods. Data was generated using an unbroken chain of comparison to NIST traceable Reference Standards and Certified Reference Materials. This report may not be reproduced, except in full, without the written approval of Botanacor Laboratories, LLC.



CDPHE Certified



Certificate #4329.02

**27533**

Batch ID or Lot Number: **C0916-001**      Test: **Pesticides**      Reported: **9/24/21**

Matrix: Concentrate      Test ID: T000164232      Started: 9/22/21      USDA License: N/A

Status: N/A      Method: TM17(LC-QQQ LC MS/MS):      Received: 09/20/2021 @ 10:42 AM      Sampler ID: N/A

## PESTICIDE DETERMINATION

Compound	LOQ (ppb)	Result (ppb)	Compound	LOQ (ppb)	Result (ppb)	Compound	LOQ (ppb)	Result (ppb)
Acephate	40	ND	Fenoxycarb	39	ND	Paclobutrazol	43	ND
Acetamiprid	38	ND	Fipronil	36	ND	Permethrin	263	ND
Avermectin	315	ND	Flonicamid	51	ND	Phosmet	46	ND
Azoxystrobin	47	ND	Fludioxonil	286	ND	Prophos	294	ND
Bifenazate	45	ND	Hexythiazox	40	ND	Propoxur	42	ND
Boscalid	50	ND	Imazalil	269	ND	Pyridaben	283	ND
Carbaryl	40	ND	Imidacloprid	51	ND	Spinosad A	36	ND
Carbofuran	42	ND	Kresoxim-methyl	150	ND	Spinosad D	54	ND
Chlorantraniliprole	56	ND	Malathion	287	ND	Spiromesifen	292	ND
Chlorpyrifos	500	ND	Metalaxyl	43	ND	Spirotetramat	299	ND
Clofentezine	289	ND	Methiocarb	40	ND	Spiroxamine 1	18	ND
Diazinon	290	ND	Methomyl	40	ND	Spiroxamine 2	25	ND
Dichlorvos	286	ND	MGK 264 1	170	ND	Tebuconazole	284	ND
Dimethoate	39	ND	MGK 264 2	118	ND	Thiacloprid	41	ND
E-Fenpyroximate	261	ND	Myclobutanil	44	ND	Thiamethoxam	42	ND
Etofenprox	41	ND	Naled	41	ND	Trifloxystrobin	45	ND
Etoxazole	310	ND	Oxamyl	1500	ND			

*Samantha Smith*  
 Sam Smith  
 9/24/2021  
 4:03:00 PM

PREPARED BY / DATE

*K Winterheimer*  
 Karen Winterheimer  
 9/24/2021  
 4:06:00 PM

APPROVED BY / DATE

### Definitions

LOQ = Limit of Quantification  
 ppb = Parts per Billion

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Prepared for:


**JOY ORGANICS**
**OTNAT450**

Batch ID or Lot Number: <b>22069A</b>	Test: <b>Microbial Contaminants</b>	Reported: <b>3/14/22</b>	Location: 5042 Technology Parkway Ste. 50 FT. COLLINS, CO 80528
Matrix: Finished Product	Test ID: T000197332	Started: 3/11/22	USDA License: N/A
Status: N/A	Methods: TM25 (qPCR) TM24, TM26, TM27(Culture Plating): Microbial	Received: 03/10/2022 @ 03:04 PM	Sampler ID: N/A

### MICROBIAL CONTAMINANTS DETERMINATION

Contaminant	Method	LOD	LLOQ	ULOQ	Result	Notes
<b>Total Aerobic Count*</b>	TM-26, Culture Plating	10 <sup>2</sup> CFU/g	10 <sup>3</sup> CFU/g	1.5x10 <sup>5</sup> CFU/g	None Detected	Free from visual mold, mildew, and foreign matter
<b>Total Coliforms*</b>	TM-27, Culture Plating	10 <sup>1</sup> CFU/g	10 <sup>2</sup> CFU/g	1.5x10 <sup>4</sup> CFU/g	None Detected	
<b>Total Yeast and Mold*</b>	TM-24, Culture Plating	10 <sup>1</sup> CFU/g	10 <sup>2</sup> CFU/g	1.5x10 <sup>4</sup> CFU/g	None Detected	
<b>STEC</b>	TM-25, PCR	10 <sup>0</sup> CFU/25 g	NA	NA	Absent	
<b>Salmonella</b>	TM-25, PCR	10 <sup>0</sup> CFU/25 g	NA	NA	Absent	

  
 Jackson Osaghae-Nosa  
 3/14/2022  
 3:29:00 PM

  
 Eden Thompson-Wright  
 3/14/2022  
 4:22:00 PM

PREPARED BY / DATE

APPROVED BY / DATE

#### Definitions

LOD = Limit of Detection | LLOQ = Lower Limit of Quantitation | ULOQ = Upper Limit of Quantitation

 CFU/g = Colony Forming Units per Gram | STEC = Shiga Toxin-Producing *E. coli*

\* Values recorded in scientific notation, a common microbial practice of expressing numbers that are too large to be conveniently written in decimal form.

Examples: 10<sup>2</sup> = 100 CFU  
 10<sup>3</sup> = 1,000 CFU  
 10<sup>4</sup> = 10,000 CFU  
 10<sup>5</sup> = 100,000 CFU

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**27533**

Batch ID or Lot Number: <b>C0916-001</b>	Test: <b>Metals</b>	Reported: <b>9/22/21</b>	
Matrix: Unit Co	Test ID: T000164234	Started: 9/21/21	USDA License: N/A
Status: N/A	Method: TM19 (ICP-MS); Heavy Metals (Colorado Panel)	Received: 09/20/2021 @ 10:42 AM	Sampler ID: N/A

### HEAVY METALS DETERMINATION

Compound	Dynamic Range (ppm)	Result (ppm)	Notes
Arsenic	0.047 - 4.70	ND	
Cadmium	0.046 - 4.56	ND	
Mercury	0.044 - 4.43	ND	
Lead	0.046 - 4.59	ND	


 Daniel Weidensaul  
 22-Sep-21  
 2:20 PM

PREPARED BY / DATE


 Ryan Weems  
 22-Sep-21  
 2:23 PM

APPROVED BY / DATE

#### Definitions

ND = None Detected (Defined by Dynamic Range of the method)

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**27533**


Batch ID or Lot Number: <b>C0916-001</b>	Test: <b>Mycotoxins</b>	Reported: <b>9/27/21</b>	
Matrix: Concentrate	Test ID: T000164236	Started: 9/24/21	USDA License: N/A
Status: N/A	Method: TM18 (UHPLC-QQQ LCMS/MS): Mycotoxins (Colorado Panel)	Received: 09/20/2021 @ 10:42 AM	Sampler ID: N/A

### MYCOTOXIN DETERMINATION

Compound	Dynamic Range (ppb)	Result (ppb)	Notes
Ochratoxin A	3.9 - 128.1	ND	N/A
Aflatoxin B1	1.3 - 32.8	ND	
Aflatoxin B2	1.2 - 32.5	ND	
Aflatoxin G1	0.9 - 31.5	ND	
Aflatoxin G2	1.2 - 31.7	ND	
<b>Total Aflatoxins (B1, B2, G1, and G2)</b>		ND	

  
 Sam Smith  
 27-Sep-21  
 8:43 AM

PREPARED BY / DATE

  
 Alex Smith  
 27-Sep-21  
 3:02 PM

APPROVED BY / DATE

#### Definitions

ND = None Detected (Defined by Dynamic Range of the method)

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27533

Batch ID or Lot Number: <b>C0916-001</b>	Test: <b>Residual Solvents</b>	Reported: <b>9/27/21</b>	
Matrix: N/A	Test ID: T000164235	Started: 9/27/21	USDA License: N/A
Status: N/A	Methods: TM04 (GC-MS): Residual Solvents (Colorado Panel)	Received: 09/20/2021 @ 10:42 AM	Sampler ID: N/A

### RESIDUAL SOLVENTS DETERMINATION

Solvent	Dynamic Range (ppm)	Result (ppm)	Notes
Propane	73 - 1454	*ND	
Butanes (Isobutane, n-Butane)	143 - 2857	*ND	
Methanol	58 - 1166	*ND	
Pentane	80 - 1610	*ND	
Ethanol	89 - 1777	*ND	
Acetone	92 - 1847	*ND	
Isopropyl Alcohol	101 - 2015	*ND	
Hexane	6 - 112	*ND	
Ethyl Acetate	93 - 1863	*ND	
Benzene	0 - 4	*ND	
Heptanes	89 - 1779	*ND	
Toluene	17 - 338	*ND	
Xylenes (m,p,o-Xylenes)	123 - 2454	*ND	

 Hannah Wright  
27-Sep-21  
6:32 PM

 Ryan Weems  
27-Sep-21  
6:35 PM

PREPARED BY / DATE

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#### Definitions

\* ND = None Detected (Defined by Dynamic Range of the method)

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