

CERTIFICATE OF ANALYSIS



PRODUCT NAME: Certified Organic Full Spectrum CBD Tincture - Key Lime
PRODUCT STRENGTH: 2250 mg per bottle
TINCTURE BATCH: 21251B
BEST BY DATE: 03/08/2023
HEMP EXTRACT LOT: CO728-002

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 - Coconut and Hemp, Lime	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
Potency - Total CBD	HPLC-UV DAD	LOQ*: \geq product strength mg / bottle	2,376 mg	PASS
Potency - D9-THC	HPLC-UV DAD	LOQ: $<0.3\%$ total THC (Full spectrum)	0.21%	PASS
Expanded Pesticide Panel	HPLC-QQQ	LOQ: Complies with CDPHE 6 CCR 1010-21 Industrial Hemp Extract	Below LOQ	PASS
Microbial Escherichia coli (STEC)	PCR	Complies with CDPHE 6 CCR 1010-21 - LOQ 1 CFU/25 gram**	Absent	PASS
Microbial Salmonella	PCR	Complies with CDPHE 6 CCR 1010-21 - LOQ 1 CFU/25 gram	Absent	PASS
Microbial Yeast and Mold	Culture Plating	Complies with CDPHE 6 CCR 1010-21 - LOQ 10^2 CFU/gram	Below LOQ	PASS
Microbial Total Coliforms	Culture Plating	Complies with CDPHE 6 CCR 1010-21 - LOQ 10^2 CFU/gram	Below LOQ	PASS
Microbial Total Aerobic Count	Culture Plating	Complies with CDPHE 6 CCR 1010-21 - LOQ 10^3 CFU/gram	Below LOQ	PASS
Heavy Metals	ICP-MS	Arsenic (As): ≤ 1.5 ppm† Cadmium (Cd): ≤ 0.5 ppm Lead (Pb): ≤ 0.5 ppm Mercury (Hg): ≤ 1.5 ppm	Below LOQ	PASS
Mycotoxins	ICP-MS	Total Aflatoxins <20 ppb†† Aflatoxin B1 <5 ppb Ochratoxin <5 ppb	Below LOQ	PASS
Residual Solvents	GC-HS-MSD	LOQ: Complies with CDPHE 6 CCR 1010-21 Industrial Hemp Extract	Below LOQ	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

Kayla Kolber

Quality Assurance Technician

09/14/2021

Date

27291

Batch ID or Lot Number: C0728-002	Test: Potency	Reported: 8/17/21	
Matrix: Solution	Test ID: T000155491	Started: 8/12/21	USDA License: N/A
Status: N/A	Method: TM14 (HPLC-DAD): Potency - Standard Cannabinoid Analysis (Colorado Panel)	Received: 08/05/2021 @ 12:37 PM	Sampler ID: N/A

CANNABINOID PROFILE

Compound	LOD (mg/mL)	LOQ (mg/mL)	Result (mg/mL)	Result (mg/g)	Notes
Delta 9-Tetrahydrocannabinolic acid (THCA-A)	0.140	0.464	ND	ND	Density = 0.945g/mL
Delta 9-Tetrahydrocannabinol (Delta 9THC)	0.158	0.523	1.965	2.08	
Cannabidiolic acid (CBDA)	0.233	0.555	ND	ND	
Cannabidiol (CBD)	0.227	0.541	79.196	83.81	
Delta 8-Tetrahydrocannabinol (Delta 8THC)	0.174	0.576	ND	ND	
Cannabinolic Acid (CBNA)	0.100	0.330	ND	ND	
Cannabinol (CBN)	0.046	0.151	0.198	0.21	
Cannabigerolic acid (CBGA)	0.146	0.484	ND	ND	
Cannabigerol (CBG)	0.035	0.116	5.827	6.17	
Tetrahydrocannabivarinic Acid (THCVA)	0.123	0.409	ND	ND	
Tetrahydrocannabivarin (THCV)	0.032	0.105	ND	ND	
Cannabidivarinic Acid (CBDVA)	0.097	0.231	ND	ND	
Cannabidivarin (CBDV)	0.054	0.128	0.500	0.53	
Cannabichromenic Acid (CBCA)	0.056	0.186	ND	ND	
Cannabichromene (CBC)	0.061	0.204	ND	ND	
Total Cannabinoids			87.686	92.79	
Total Potential THC**			1.965	2.08	
Total Potential CBD**			79.196	83.81	

Daniel Weidensaul
 Daniel Weidensaul
 17-Aug-2021
 01:50 PM

Taylor Brevik
 Taylor Brevik
 17-Aug-21
 1:56 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.



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Certificate #4329.02

27291

Batch ID or Lot Number: **C0728-002** Test: **Pesticides** Reported: **8/11/21**

Matrix: Concentrate Test ID: T000155492 Started: 8/10/21 USDA License: N/A

Status: N/A Method: TM17(LC-QQQ LC MS/MS): Received: 08/05/2021 @ 12:37 PM Sampler ID: N/A

PESTICIDE DETERMINATION

Compound	LOQ (ppm)	Result (ppm)	Compound	LOQ (ppm)	Result (ppm)	Compound	LOQ (ppm)	Result (ppm)
Acephate	54	ND	Fenoxycarb	54	ND	Paclobutrazol	54	ND
Acetamiprid	54	ND	Fipronil	54	ND	Permethrin	324	ND
Avermectin	324	ND	Flonicamid	54	ND	Phosmet	54	ND
Azoxystrobin	54	ND	Fludioxonil	324	ND	Prophos	324	ND
Bifenazate	54	ND	Hexythiazox	54	ND	Propoxur	54	ND
Boscalid	54	ND	Imazalil	324	ND	Pyridaben	324	ND
Carbaryl	54	ND	Imidacloprid	54	ND	Spinosad A	54	ND
Carbofuran	54	ND	Kresoxim-methyl	150	ND	Spinosad D	324	ND
Chlorantraniliprole	54	ND	Malathion	324	ND	Spiromesifen	324	ND
Chlorpyrifos	500	ND	Metalaxyl	54	ND	Spirotetramat	324	ND
Clofentezine	324	ND	Methiocarb	54	ND	Spiroxamine 1	54	ND
Diazinon	324	ND	Methomyl	54	ND	Spiroxamine 2	54	ND
Dichlorvos	324	ND	MGK 264 1	324	ND	Tebuconazole	324	ND
Dimethoate	54	ND	MGK 264 2	324	ND	Thiacloprid	54	ND
E-Fenpyroximate	324	ND	Myclobutanil	54	ND	Thiamethoxam	54	ND
Etofenprox	54	ND	Naled	54	ND	Trifloxystrobin	54	ND
Etoxazole	324	ND	Oxamyl	1500	ND			



Taylor Brevik
 8/11/2021
 4:08:00 PM



Sam Smith
 8/11/2021
 4:11:00 PM

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Definitions

LOQ = Limit of Quantification
 ppb = Parts per Billion

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Certificate #4329.02

Prepared for:

JOY ORGANICS
OFTKL2250


Batch ID or Lot Number: 21251B	Test: Microbial Contaminants	Reported: 9/12/21	Location: 5042 Technology Parkway Ste. 50 FT. COLLINS, CO 80528
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Matrix: Finished Product	Test ID: T000162406	Started: 9/8/21	USDA License: N/A
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Status: N/A	Methods: TM25 (qPCR) TM24, TM26, TM27(Culture Plating): Microbial (Colorado Panel)	Received: 09/09/2021 @ 10:49 AM	Sampler ID: N/A
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MICROBIAL CONTAMINANTS DETERMINATION

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

 Brett Hudson
9/12/2021
11:02:00 AM

 Sarah Henning
9/12/2021
1:33:00 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:
 10² = 100 CFU
 10³ = 1,000 CFU
 10⁴ = 10,000 CFU
 10⁵ = 100,000 CFU

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Batch ID or Lot Number: C0728-002	Test: Metals	Reported: 8/13/21	
Matrix: Unit Co	Test ID: T000155494	Started: 8/12/21	USDA License: N/A
Status: N/A	Method: TM19 (ICP-MS); Heavy Metals (Colorado Panel)	Received: 08/05/2021 @ 12:37 PM	Sampler ID: N/A

HEAVY METALS DETERMINATION

Compound	Dynamic Range (ppb)	Result (ppb)	Notes
Arsenic	0.044 - 4.39	ND	
Cadmium	0.048 - 4.78	ND	
Mercury	0.044 - 4.38	ND	
Lead	0.044 - 4.38	ND	


 Sam Smith
 13-Aug-21
 1:11 PM


 Daniel Weidensaul
 13-Aug-21
 1:14 PM

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Definitions

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

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Batch ID or Lot Number: C0728-002	Test: Mycotoxins	Reported: 8/12/21	
Matrix: Concentrate	Test ID: T000155496	Started: 8/11/21	USDA License: N/A
Status: N/A	Method: TM18 (UHPLC-QQQ LCMS/MS): Mycotoxins (Colorado Panel)	Received: 08/05/2021 @ 12:37 PM	Sampler ID: N/A

MYCOTOXIN DETERMINATION

Compound	Dynamic Range (ppb)	Result (ppb)	Notes
Ochratoxin A	5.2 - 139.1	ND	N/A
Aflatoxin B1	1 - 36	ND	
Aflatoxin B2	1.1 - 35.2	ND	
Aflatoxin G1	1 - 35.3	ND	
Aflatoxin G2	1.2 - 34.1	ND	
Total Aflatoxins (B1, B2, G1, and G2)		ND	


Taylor Brevik
12-Aug-21
2:47 PM

PREPARED BY / DATE


Sam Smith
12-Aug-21
2:50 PM

APPROVED BY / DATE

Definitions

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Batch ID or Lot Number: C0728-002	Test: Residual Solvents	Reported: 8/12/21	
Matrix: N/A	Test ID: T000155495	Started: 8/11/21	USDA License: N/A
Status: N/A	Methods: TM04 (GC-MS): Residual Solvents (Colorado Panel)	Received: 08/05/2021 @ 12:37 PM	Sampler ID: N/A

RESIDUAL SOLVENTS DETERMINATION

Solvent	Dynamic Range (ppm)	Result (ppm)	Notes
Propane	93 - 1865	*ND	
Butanes (Isobutane, n-Butane)	175 - 3502	*ND	
Methanol	65 - 1297	*ND	
Pentane	96 - 1916	*ND	
Ethanol	102 - 2048	*ND	
Acetone	105 - 2109	*ND	
Isopropyl Alcohol	116 - 2328	*ND	
Hexane	6 - 130	*ND	
Ethyl Acetate	107 - 2140	*ND	
Benzene	0 - 4	*ND	
Heptanes	102 - 2034	*ND	
Toluene	19 - 387	*ND	
Xylenes (m,p,o-Xylenes)	143 - 2859	*ND	


 Karen Winternheimer
 12-Aug-21
 3:07 PM

PREPARED BY / DATE


 Ryan Weems
 12-Aug-21
 3:09 PM

APPROVED BY / DATE

Definitions

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

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