CERTIFICATE OF ANALYSIS

PRODUCT NAME: *Certified Organic - Full Spectrum CBD Tincture - Tropical
PRODUCT STRENGTH: 2250 mg per bottle
TINCTURE BATCH: 21258B
BEST BY DATE: 03/15/2023
HEMP EXTRACT LOT: C0728-002

Click on the links to view third-party reports

Physical Atttributes

Test	Method	Specification	Results
Color	Internal	Golden to Amber	PASS
Odor	Internal	Characteristic - Coconut and Hemp, Tropical	PASS
Appearance	Internal	Golden to Amber oil in brown glass bottle with dropper.	PASS
Primary Package Eval.	Internal	Container clean and free of filth. Container caps tight and shrink bands intact	PASS
Secondary Package Eval.	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**: ≥ 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†† Afltoxin 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

*Only applies to products with labels claiming certified organic
**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 — 09/21/2021

Kayla Kolber
Quality Assurance Technician

Date

5042 Technology Parkway, Fort Collins, CO 80528
Tel: (833) 569-7223 www.joyorganics.com

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Official Compliance: Colorado
CERTIFICATE OF ANALYSIS

27291

Batch ID or Lot Number:	Test:	Reported:
C0728-002	**Potency**	**8/17/21**

Matrix:	Test ID:	Started:	USDA License:
Solution	T000155491	8/12/21	N/A

Status:	Method:	Received:	Sampler ID:
N/A	TM14 (HPLC-DAD): Potency – Standard Cannabinoid Analysis (Colorado Panel)	08/05/2021 @ 12:37 PM	N/A

CANNABINOID PROFILE

Compound	LOD (mg/mL)	LOQ (mg/mL)	Result (mg/mL)	Result (mg/g)
Delta 9-Tetrahydrocannabinolic acid (THCA-A)	0.140	0.464	ND	ND
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

Notes

Density = 0.945g/mL

Daniel Weidensaul
17-Aug-2021
01:50 PM
PREPARED BY / DATE

Taylor Brevik
17-Aug-21
1:56 PM
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.
Total THC = THC + (THCa *(0.877)) and
Total CBD = CBD + (CBDa *(0.877))
Total Cannabinoids result reflects the absolute sum of all cannabinoids detected.
ND = None Detected (Defined by Dynamic Range of the method)

CDPHE Certified

Certificate #4329.02

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 OF ANALYSIS

27291

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

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

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

PREPARED BY / DATE

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

APPROVED BY / DATE

Definitions

LOQ = Limit of Quantification
ppb = Parts per Billion

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ilac-MRA A2LA ACCREDITED
Certificate #4329.02

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CERTIFICATE OF ANALYSIS

OFTT2250

Batch ID or Lot Number:	Test:	Reported:	
21258B	**Microbial Contaminants**	**9/20/21**	
Matrix:	Test ID:	Started:	USDA License:
Finished Product	T000164002	9/16/21	N/A
Status:	Methods:	Received:	Sampler ID:
N/A	TM25 (qPCR) TM24, TM26, TM27(Culture Plating): Microbial (Colorado Panel)	09/16/2021 @ 10:43 AM	N/A

MICROBIAL CONTAMINANTS DETERMINATION

Contaminant	Method	LOD	LLOQ	ULOQ	Result
Total Aerobic Count*	TM-26, Culture Plating	10^2 CFU/g	10^3 CFU/g	1.5x10^5 CFU/g	None Detected
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

Notes

Free from visual mold, mildew, and foreign matter

Carly Bader
9/19/2021
1:34:00 PM
PREPARED BY / DATE

Tori King
9/20/2021
2:27:00 PM
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:
10^2 = 100 CFU
10^3 = 1,000 CFU
10^4 = 10,000 CFU
10^5 = 100,000 CFU

CDPHE Certified

Certificate #4329.02

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CERTIFICATE OF ANALYSIS

27291

Batch ID or Lot Number:	Test:	Reported:
C0728-002	**Metals**	**8/13/21**

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Matrix:	Test ID:	Started:	USDA License:
Unit Co	T000155494	8/12/21	N/A

Status:	Method:	Received:	Sampler ID:
N/A	TM19 (ICP-MS): Heavy Metals (Colorado Panel)	08/05/2021 @ 12:37 PM	N/A

HEAVY METALS DETERMINATION

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

Notes

Samantha Smith
Sam Smith
13-Aug-21
1:11 PM

PREPARED BY / DATE

Daniel Weidensaul
Daniel Weidensaul
13-Aug-21
1:14 PM

APPROVED BY / DATE

Definitions

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

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Certificate #4329.02

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27291

Batch ID or Lot Number:	Test:	Reported:
C0728-002	**Mycotoxins**	**8/12/21**

Matrix:	Test ID:	Started:	USDA License:
Concentrate	T000155496	8/11/21	N/A

Status:	Method:	Received:	Sampler ID:
N/A	TM18 (UHPLC-QQQ LCMS/MS): Mycotoxins (Colorado Panel)	08/05/2021 @ 12:37 PM	N/A

MYCOTOXIN DETERMINATION

Compound	Dynamic Range (ppb)	Result (ppb)
Ochratoxin A	5.2 - 139.1	ND
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

Notes

N/A

Taylor Brevik
12-Aug-21
2:47 PM

PREPARED BY / DATE

Sam Smith
12-Aug-21
2:50 PM

APPROVED BY / DATE

Definitions

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

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CERTIFICATE OF ANALYSIS

27291

Batch ID or Lot Number:	Test:	Reported:
C0728-002	**Residual Solvents**	**8/12/21**

Matrix:	Test ID:	Started:	USDA License:
N/A	T000155495	8/11/21	N/A

Status:	Methods:	Received:	Sampler ID:
N/A	TM04 (GC-MS): Residual Solvents (Colorado Panel)	08/05/2021 @ 12:37 PM	N/A

RESIDUAL SOLVENTS DETERMINATION

Solvent	Dynamic Range (ppm)	Result (ppm)
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

Notes

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)

CDPHE Certified

Certificate #4329.02