

CERTIFICATE OF ANALYSIS

PRODUCT NAME: Certified Organic - Joy Organics CBD Tincture - Natural
PRODUCT STRENGTH: 900 mg per bottle
TINCTURE BATCH: 21349A
BEST BY DATE: 06/15/2023
HEMP EXTRACT LOT: C1116-001

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
Potency - Total CBD	HPLC-UV DAD	LOQ*: ≥ 900 mg / bottle	1066.74 mg	PASS
Potency - D9-THC	HPLC-UV DAD	LOQ: $<0.01\%$ (broad spectrum)	Below LOQ	PASS
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 <20 ppb Ochratoxin <20 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


 Keegan Schlittler
 Quality Assurance Manager

12/21/2021


Date


27835

Batch ID or Lot Number: C1116-001	Test: Potency	Reported: 11/23/21	
Matrix: Solution	Test ID: T000177397	Started: 11/22/21	USDA License: N/A
Status: N/A	Method: TM14 (HPLC-DAD): Potency - Standard Cannabinoid Analysis (Colorado Panel)	Received: 11/19/2021 @ 10:26 AM	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)	0.164	0.465	ND	ND	
Delta 9-Tetrahydrocannabinol (Delta 9THC)	0.185	0.524	ND	ND	Density = 0.92g/mL
Cannabidiolic acid (CBDA)	0.176	0.541	ND	ND	
Cannabidiol (CBD)	0.172	0.528	35.558	38.65	
Delta 8-Tetrahydrocannabinol (Delta 8THC)	0.204	0.577	ND	ND	
Cannabinolic Acid (CBNA)	0.117	0.331	ND	ND	
Cannabinol (CBN)	0.053	0.151	ND	ND	
Cannabigerolic acid (CBGA)	0.171	0.485	ND	ND	
Cannabigerol (CBG)	0.041	0.116	2.421	2.63	
Tetrahydrocannabivarinic Acid (THCVA)	0.144	0.410	ND	ND	
Tetrahydrocannabivarin (THCV)	0.037	0.105	ND	ND	
Cannabidivarinic Acid (CBDVA)	0.073	0.226	ND	ND	
Cannabidivarin (CBDV)	0.041	0.125	0.252	0.27	
Cannabichromenic Acid (CBCA)	0.066	0.187	ND	ND	
Cannabichromene (CBC)	0.072	0.204	ND	ND	
Total Cannabinoids			38.231	41.56	
Total Potential THC**			ND	ND	
Total Potential CBD**			35.558	38.65	


 Daniel Weidensaul
 23-Nov-2021
 05:10 PM


 Ryan Weems
 23-Nov-21
 5:13 PM

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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)

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

27835


Batch ID or Lot Number:	Test:	Reported:
C1116-001	Pesticides	11/29/21


Matrix:	Test ID:	Started:	USDA License:
Concentrate	T000177398	11/29/21	N/A

Status:	Method:	Received:	Sampler ID:
N/A	TM17(LC-QQQ LC MS/MS):	11/19/2021 @ 10:26 AM	N/A

PESTICIDE DETERMINATION

Compound	LOQ (ppb)	Result (ppb)	Compound	LOQ (ppb)	Result (ppb)	Compound	LOQ (ppb)	Result (ppb)
Acephate	34	ND	Fenoxycarb	47	ND	Paclobutrazol	43	ND
Acetamiprid	43	ND	Fipronil	2	ND	Permethrin	283	ND
Avermectin	274	ND	Flonicamid	47	ND	Phosmet	36	ND
Azoxystrobin	46	ND	Fludioxonil	292	ND	Prophos	283	ND
Bifenazate	43	ND	Hexythiazox	41	ND	Propoxur	43	ND
Boscalid	55	ND	Imazalil	286	ND	Pyridaben	287	ND
Carbaryl	41	ND	Imidacloprid	48	ND	Spinosad A	35	ND
Carbofuran	43	ND	Kresoxim-methyl	150	ND	Spinosad D	51	ND
Chlorantraniliprole	47	ND	Malathion	294	ND	Spiromesifen	274	ND
Chlorpyrifos	500	ND	Metalaxyl	45	ND	Spirotetramat	287	ND
Clofentezine	281	ND	Methiocarb	41	ND	Spiroxamine 1	29	ND
Diazinon	285	ND	Methomyl	42	ND	Spiroxamine 2	27	ND
Dichlorvos	320	ND	MGK 264 1	158	ND	Tebuconazole	289	ND
Dimethoate	45	ND	MGK 264 2	127	ND	Thiacloprid	43	ND
E-Fenpyroximate	287	ND	Myclobutanil	42	ND	Thiamethoxam	36	ND
Etofenprox	46	ND	Naled	41	ND	Trifloxystrobin	48	ND
Etoxazole	296	ND	Oxamyl	1500	ND			


 Sam Smith
 11/29/2021
 5:56:00 PM


 Daniel Weidensaul
 11/29/2021
 6:39:00 PM

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Definitions

LOQ = Limit of Quantification
 ppb = Parts per Billion

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Prepared for:

OTNAT900
JOY ORGANICS

Batch ID or Lot Number: 21349A	Test: Microbial Contaminants	Reported: 12/20/21	Location: 5042 Technology Parkway Ste. 50 FT. COLLINS, CO 80528
Matrix: Finished Product	Test ID: T000182666	Started: 12/17/21	USDA License: N/A
Status: N/A	Methods: TM25 (qPCR) TM24, TM26, TM27(Culture Plating): Microbial (Colorado Panel)	Received: 12/16/2021 @ 12:23 PM	Sampler ID: N/A

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 ¹ CFU/g	10 ² CFU/g	1.5x10 ⁴ CFU/g	None Detected	
Total Yeast and Mold*	TM-24, Culture Plating	10 ¹ 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	


 Eden Thompson-Wright
 12/20/2021
 3:30:00 PM

PREPARED BY / DATE


 Brett Hudson
 12/20/2021
 5:23:00 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:
 10² = 100 CFU
 10³ = 1,000 CFU
 10⁴ = 10,000 CFU
 10⁵ = 100,000 CFU

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Batch ID or Lot Number: C1116-001	Test: Metals	Reported: 11/23/21
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Matrix: Unit Co	Test ID: T000177400	Started: 11/22/21	USDA License: N/A
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Status: N/A	Method: TM19 (ICP-MS): Heavy Metals (Colorado Panel)	Received: 11/19/2021 @ 10:26 AM	Sampler ID: N/A
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HEAVY METALS DETERMINATION

Compound	Dynamic Range (ppm)	Result (ppm)	Notes
Arsenic	0.040 - 4.04	ND	
Cadmium	0.042 - 4.23	ND	
Mercury	0.042 - 4.15	ND	
Lead	0.042 - 4.23	ND	

	Ryan Weems 23-Nov-21 1:03 PM
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PREPARED BY / DATE

	Sam Smith 23-Nov-21 1:07 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: C1116-001	Test: Mycotoxins	Reported: 11/29/21	
Matrix: Concentrate	Test ID: T000177402	Started: 11/24/21	USDA License: N/A
Status: N/A	Method: TM18 (UHPLC-QQQ LCMS/MS): Mycotoxins (Colorado Panel)	Received: 11/19/2021 @ 10:26 AM	Sampler ID: N/A


MYCOTOXIN DETERMINATION

Compound	Dynamic Range (ppb)	Result (ppb)	Notes
Ochratoxin A	4.3 - 132.8	ND	N/A
Aflatoxin B1	1.2 - 33.7	ND	
Aflatoxin B2	1.2 - 33.8	ND	
Aflatoxin G1	1.2 - 33.9	ND	
Aflatoxin G2	1.2 - 33	ND	
Total Aflatoxins (B1, B2, G1, and G2)		ND	



Ryan Weems
29-Nov-21
3:49 PM

PREPARED BY / DATE



Sam Smith
29-Nov-21
4:04 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: C1116-001	Test: Residual Solvents	Reported: 11/24/21	
Matrix: N/A	Test ID: T000177401	Started: 11/23/21	USDA License: N/A
Status: N/A	Methods: TM04 (GC-MS): Residual Solvents (Colorado Panel)	Received: 11/19/2021 @ 10:26 AM	Sampler ID: N/A

RESIDUAL SOLVENTS DETERMINATION

Solvent	Dynamic Range (ppm)	Result (ppm)	Notes
Propane	91 - 1815	*ND	
Butanes (Isobutane, n-Butane)	181 - 3630	*ND	
Methanol	55 - 1109	*ND	
Pentane	75 - 1507	*ND	
Ethanol	80 - 1601	*ND	
Acetone	89 - 1771	*ND	
Isopropyl Alcohol	95 - 1897	*ND	
Hexane	5 - 108	*ND	
Ethyl Acetate	91 - 1811	*ND	
Benzene	0.2 - 3.6	*ND	
Heptanes	85 - 1692	*ND	
Toluene	16 - 328	*ND	
Xylenes (m,p,o-Xylenes)	119 - 2374	*ND	


 Sam Smith
 24-Nov-21
 2:14 PM

PREPARED BY / DATE


 Ryan Weems
 24-Nov-21
 2:15 PM

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Definitions

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

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