JOY ORGANICS

CERTIFICATE OF ANALYSIS

PRODUCT NAME: CBD Softgels with Curcumin
PRODUCT STRENGTH: 25 mg CBD / 10 mg Curcumin
TINCTURE BATCH: 21279A
BEST BY DATE: 03/03/2023
HEMP EXTRACT LOT: 21143

Click on the links to view third-party reports

Physical Atttributes

Test	Method	Specification	Results
Color	Joy Internal	Red	PASS
Odor	Joy Internal	No Odor	PASS
Appearance	Joy Internal	Dry, ovoid softgel capsules in container with lid and shrink-band	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*: ≥ product strength mg / bottle	**28.0 mg**	PASS
Potency - D9-THC	HPLC-UV DAD	LOQ: <0.01% THC (Broad Spectrum)	**Below LOQ**	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 < 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 Kayla Kolber 10/12/2021

Kayla Kolber
Quality Assurance Technician
Date

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

FO-106 Certificate of Analysis
Rev. 1.1 - Effective Date: 2/20/2020

certificate ID
1CD57

Nano BS Curcumin 25mg

7USC1639 Certificate of Analysis

Lot# 21143

rec'd 3/5/2021 11:34:16 AM

order 10005

total cannabinoids
29.2mg per pill

THC tot ND

CBD tot 28.0mg

This Product Has Been Tested and Complies with 7USC1639o(1)

Stillwater Laboratories

Potency per pill

MSP-7.5.1.4

		LOD | LOQ | error (95%CI k=2)
total cannabinoids	**29.2mg**	**0.15 | 0.46 | ±0.69mg**
total THC‡	**ND**	**0.15 | 0.46 | ±0.46mg**
total THC (THC+THCa)	**ND**	**0.15 | 0.46 | ±0.46mg**
total CBD‡	**28.0mg**	**0.15 | 0.46 | ±0.68mg**
total CBD (CBD+CBDa)	**28.0mg**	**0.15 | 0.46 | ±0.68mg**
tetrahydrocannabolic acid (THCa)	ND	0.15 | 0.46 | ±0.46mg
Δ9-tetrahydrocannabinol (Δ9 THC)	ND	0.14 | 0.43 | ±0.43mg
Δ8-tetrahydrocannabinol (Δ8 THC)	ND	0.19 | 0.58 | ±0.58mg
tetrahydrocannabivarin (THCv)	ND	0.16 | 0.48 | ±0.48mg
cannabidiolic acid (CBDa)	<LOQ	0.13 | 0.40 | ±0.40mg
cannabidiol (CBD)	27.8mg	0.15 | 0.46 | ±0.68mg
cannabidivarin (CBDv)	ND	0.15 | 0.46 | ±0.46mg
cannabigerolic acid (CBGa)	ND	0.14 | 0.41 | ±0.41mg
cannabigerol (CBG)	0.7mg	0.04 | 0.13 | ±0.14mg
cannabinol (CBN)	ND	0.08 | 0.25 | ±0.25mg
cannabichromene (CBC)	<LOQ	0.15 | 0.46 | ±0.46mg

Terpenes

MSP-7.5.1.6

caryophyllene
humulene
terpinolene
ocimene
beta pinene
alpha pinene
limonene
myrcene
linalool

total terpenes	**ND**
linalool	ND
β-myrcene	ND
D-limonene	ND
α-pinene	ND
β-pinene	ND
ocimene	ND
terpinolene	ND
α-humulene	ND
β-caryophyllene	ND
α-bisabolol	ND
camphene	ND
Δ3-carene	ND
caryophyllene oxide	ND
para-cymene	ND
eucalyptol	ND
geraniol	ND
guaiol	ND

Microbial

MSP-7.5.1.10

		limit	LOD | LOQ | error	result
E.coli	ND	0CFU	0.0 | 0.1 | ±0.1CFU	PASS
Salmonella sp.	ND	0CFU	0.0 | 0.1 | ±0.1CFU	PASS
molds	ND	10000CFU	1.7 | 5.0 | ±5.0CFU	PASS
Ochratoxin A	ND	20 ppb	0.4 | 1.3 | ±1.3 ppb	PASS
Aflatoxin B1B2G1G2	ND	20 ppb	0.4 | 1.3 | ±1.3 ppb	PASS

Solvents

MSP-7.5.1.7

		limit	LOD | LOQ | error	result
Acetone	ND	5000 ppm	0.6 | 1.8 | ±1.8 ppm	PASS
Acetonitrile	ND	410 ppm	0.5 | 1.6 | ±1.6 ppm	PASS
Benzene	ND	0 ppm	0.0 | 0.1 | ±0.1 ppm	PASS
Butane	ND	5000 ppm	1.3 | 3.8 | ±3.8 ppm	PASS
Chloroform	ND	0 ppm	0.1 | 0.2 | ±0.2 ppm	PASS
Cyclohexane	ND	0 ppm	0.5 | 1.4 | ±1.4 ppm	PASS
Ethanol	8 ppm	10000 ppm	0.6 | 1.9 | ±2.1 ppm	PASS
Heptane	ND	5000 ppm	0.4 | 1.1 | ±1.1 ppm	PASS
Hexane	ND	290 ppm	0.5 | 1.4 | ±1.4 ppm	PASS
Isopropyl alcohol	ND	5000 ppm	0.6 | 1.7 | ±1.7 ppm	PASS
Methanol	ND	3000 ppm	0.5 | 1.4 | ±1.4 ppm	PASS
Pentane	ND	5000 ppm	0.2 | 0.5 | ±0.5 ppm	PASS
Propane	ND	5000 ppm	0.5 | 1.4 | ±1.4 ppm	PASS
Toluene	ND	890 ppm	0.3 | 0.8 | ±0.8 ppm	PASS
Xylenes	ND	2170 ppm	0.3 | 0.9 | ±0.9 ppm	PASS

Metals

MSP-7.5.1.11

		limit	LOD | LOQ | error	result
Arsenic	ND	1500 ppb	2.5 | 7.5 | ±7.5 ppb	PASS
Cadmium	ND	500 ppb	2.7 | 8.0 | ±8.0 ppb	PASS
Lead	ND	500 ppb	4.2 | 12.5 | ±12.5 ppb	PASS
Mercury	ND	300 ppb	2.1 | 6.3 | ±6.3 ppb	PASS

Pesticides

MSP-7.5.1.8

		limit	LOD | LOQ | error	result
Pyrethrin	ND	1.00 ppm	0.003 | 0.008 | ±0.008 ppm	PASS
Pyridaben	ND	3.00 ppm	0.001 | 0.003 | ±0.003 ppm	PASS
Spinetoram	ND	3.00 ppm	0.004 | 0.011 | ±0.011 ppm	PASS
Spinosad	ND	3.00 ppm	0.007 | 0.020 | ±0.020 ppm	PASS
Spiromesifen	ND	12.00 ppm	0.003 | 0.009 | ±0.009 ppm	PASS
Spirotetramat	ND	13.00 ppm	0.002 | 0.007 | ±0.007 ppm	PASS
Spiroxamine	ND	0.00 ppm	0.001 | 0.003 | ±0.003 ppm	PASS
Tebuconazole	ND	2.00 ppm	0.005 | 0.016 | ±0.016 ppm	PASS
Thiacloprid	ND	0.10 ppm	0.001 | 0.003 | ±0.003 ppm	PASS
Thiamethoxam	ND	4.50 ppm	0.003 | 0.009 | ±0.009 ppm	PASS
Trifloxystrobin	ND	30.00 ppm	0.002 | 0.007 | ±0.007 ppm	PASS

Pesticides

MSP-7.5.1.8

		limit	LOD | LOQ | error	result
Abamectin	ND	0.30 ppm	0.007 | 0.022 | ±0.022 ppm	PASS
Acephate	ND	5.00 ppm	0.008 | 0.023 | ±0.023 ppm	PASS
Acequinocyl	ND	4.00 ppm	0.007 | 0.020 | ±0.020 ppm	PASS
Acetamiprid	ND	5.00 ppm	0.005 | 0.016 | ±0.016 ppm	PASS
Aldicarb	ND	0.00 ppm	0.002 | 0.006 | ±0.006 ppm	PASS
Azoxystrobin	ND	40.00 ppm	0.002 | 0.006 | ±0.006 ppm	PASS
Bifenazate	ND	5.00 ppm	0.002 | 0.005 | ±0.005 ppm	PASS
Bifenthrin	ND	0.50 ppm	0.001 | 0.003 | ±0.003 ppm	PASS
Boscalid	ND	10.00 ppm	0.021 | 0.064 | ±0.064 ppm	PASS
Carbaryl	ND	0.50 ppm	0.008 | 0.025 | ±0.025 ppm	PASS
Carbofuran	ND	0.00 ppm	0.002 | 0.005 | ±0.005 ppm	PASS
Chloantraniliprole	ND	40.00 ppm	0.020 | 0.061 | ±0.061 ppm	PASS
Chlorfenapyr	ND	0.00 ppm	0.005 | 0.016 | ±0.016 ppm	PASS
Chlorpyrifos	ND	0.00 ppm	0.042 | 0.127 | ±0.127 ppm	PASS
Clofentezine	ND	0.50 ppm	0.008 | 0.023 | ±0.023 ppm	PASS
Coumaphos	ND	0.00 ppm	0.005 | 0.016 | ±0.016 ppm	PASS
Cyfluthrin	ND	1.00 ppm	0.008 | 0.023 | ±0.023 ppm	PASS
Cypermethrin	ND	1.00 ppm	0.005 | 0.016 | ±0.016 ppm	PASS
Daminozide	ND	0.00 ppm	0.029 | 0.086 | ±0.086 ppm	PASS
Dichlorvos	ND	0.00 ppm	0.015 | 0.044 | ±0.044 ppm	PASS
Diazinon	ND	0.20 ppm	0.001 | 0.004 | ±0.004 ppm	PASS
Dimethoate	ND	0.00 ppm	0.002 | 0.006 | ±0.006 ppm	PASS
Etoxazole	ND	1.50 ppm	0.004 | 0.012 | ±0.012 ppm	PASS
Fenoxycarb	ND	0.00 ppm	0.004 | 0.011 | ±0.011 ppm	PASS
Fenpyroximate	ND	2.00 ppm	0.001 | 0.004 | ±0.004 ppm	PASS
Fipronil	ND	0.00 ppm	0.008 | 0.023 | ±0.023 ppm	PASS
Flonicamid	ND	2.00 ppm	0.102 | 0.307 | ±0.307 ppm	PASS
Fludioxonil	ND	30.00 ppm	0.007 | 0.020 | ±0.020 ppm	PASS
Hexythiazox	ND	2.00 ppm	0.001 | 0.003 | ±0.003 ppm	PASS
Imazalil	ND	0.00 ppm	0.007 | 0.020 | ±0.020 ppm	PASS
Imidacloprid	ND	3.00 ppm	0.001 | 0.004 | ±0.004 ppm	PASS
Malathion	ND	5.00 ppm	0.005 | 0.016 | ±0.016 ppm	PASS
Metalaxyl	ND	15.00 ppm	0.008 | 0.024 | ±0.024 ppm	PASS
Methiocarb	ND	0.00 ppm	0.004 | 0.011 | ±0.011 ppm	PASS
Methomyl	ND	0.10 ppm	0.001 | 0.002 | ±0.002 ppm	PASS
Methyl parathion	ND	0.00 ppm	0.001 | 0.003 | ±0.003 ppm	PASS
Mevinphos	ND	0.00 ppm	0.005 | 0.016 | ±0.016 ppm	PASS
Myclobutanil	ND	9.00 ppm	0.001 | 0.003 | ±0.003 ppm	PASS
Naled	ND	0.50 ppm	0.005 | 0.016 | ±0.016 ppm	PASS
Oxamyl	ND	0.20 ppm	0.002 | 0.007 | ±0.007 ppm	PASS
Paclobutrazol	ND	0.00 ppm	0.003 | 0.009 | ±0.009 ppm	PASS
Permethrin	ND	20.00 ppm	0.010 | 0.031 | ±0.031 ppm	PASS
Phosmet	ND	0.20 ppm	0.003 | 0.009 | ±0.009 ppm	PASS
Piperonylbutoxide	ND	8.00 ppm	0.011 | 0.032 | ±0.032 ppm	PASS
Prallethrin	ND	0.40 ppm	0.004 | 0.012 | ±0.012 ppm	PASS
Propiconazole	ND	20.00 ppm	0.004 | 0.012 | ±0.012 ppm	PASS
Propoxur	ND	0.00 ppm	0.006 | 0.018 | ±0.018 ppm	PASS

SECURITY FEATURE: WATERMARK MUST MATCH CERTIFICATE ID AND ISSUE DATE

Certified by:

Kyle Larson, MSc
Deputy Director

QA Manager

Jacob Harris

ISO/IEC 17025:2017

ACCREDITED

Certificate #4961.01

https://portal.a2la.org/scopepdf/4961-01.pdf

Printed 3/17/2021 4:13 PM

Stillwater Laboratories Inc.
MT License L0001, L00007
6073 US93N Suite 5, Olney MT 59927
406-881-2019

INSTRUMENTS: Potency by HPLC (LC2030C-UV), solvents and terpenes by GCMS (QP2020/HS20), pesticides and mycotoxins by LCMSMS (LC8060), microbial by qPCR (AriaMx) and plating (Hardy Diagnostics), metals by ICPMS (ICPMS-2030)

• All testing was completed onsite at 6073 US93N, Olney MT •• Potency (cannabinoid concentration) is calcuated as: [cannabioid] = $[\text{cannabinoid}]_{HPLC} \times \text{volume}_{dilution}/m_{dry}$. ••• Decarboxyted cannabinoid concentration is calculated $XXX_{total} = 0.877 \times XXXa + XXX$ •••• Standards are used to calibrate the resulting data and estimate error using a standard estimate of error method; LOD is the limit of detection ($3.3s_i$), LOQ is the limit of quantification (3xLOD), and experimental error is calculated from weighing, dilution, and interpolation error using the formula $s_g^2 = \sum(\partial f/\partial i)^2 s_i^2$ where i is the contributor to error. The 95% confidence range is calculated from: (concentration) ± $t_{CL90} \times s_g$. Sampling error is not considered in error calculations. ND = not detected (< LOD), NT = not tested, NL = no limit, NA = not applicable. ‡ = decarbed

BioChroma Analytical Labs, LLC
1309 Record Crossing Rd
Dallas, TX 75235

Analytical Report

Report Date: 03/10/2021

Work Order: CHSG210304-032
Received Date: 03/04/2021
P.O. #:

Comments:

Sample Num: 21CH02105 **Lot Number:** 21143
Client Sample Num: BS 25mg Curcumin
Comments:

Analysis	Method Reference	Result	Unit	Analysis Date	Approval Date
Curcuminoid- Bis-demethoxycurcumin	AOAC 2016.16	0.127	mg/svg	03/10/2021	03/10/2021
Curcuminoid- Curcumin	AOAC 2016.16	10.08	mg/svg	03/10/2021	03/10/2021
Curcuminoid- Demethoxycurcumin	AOAC 2016.16	1.15	mg/svg	03/10/2021	03/10/2021
Curcuminoid- Total Curcuminoids	AOAC 2016.16	11.36	mg/svg	03/10/2021	03/10/2021

Reviewed by:
Cheri Turman, PhD., Vice President

botanacor

Official Compliance: Colorado

CERTIFICATE OF ANALYSIS

SG25C

Batch ID or Lot Number:	Test:	Reported:
21279A	**Microbial Contaminants**	**10/11/21**

Matrix:	Test ID:	Started:	USDA License:
Finished Product	T000167879	10/8/21	N/A

Status:	Methods:	Received:	Sampler ID:
N/A	TM25 (qPCR) TM24, TM26, TM27(Culture Plating): Microbial (Colorado Panel)	10/07/2021 @ 12:20 PM	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	10^1 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

Notes

Free from visual mold, mildew, and foreign matter

Jackson Osaghae-Nosa
10/11/2021
12:25:00 PM
PREPARED BY / DATE

Brett Hudson
10/11/2021
4:07:00 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

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