

# CERTIFICATE OF ANALYSIS

**PRODUCT NAME:** \*Certified Organic - CBD Tincture - Key Lime\*  
**PRODUCT STRENGTH:** 900 mg / bottle  
**TINCTURE BATCH:** 22041A  
**BEST BY DATE:** 8/9/2023  
**HEMP EXTRACT LOT:** CO727-001

\*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 - Coconut and Hemp, Key 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 |
|---|-----------------|--|------------------|-----------|
| <b>Potency - Total CBD</b>                  | HPLC-UV DAD     | LOQ*: ≥ 450 mg / bottle  | <b>963.63 mg</b> | PASS      |
| <b>Potency - D9-THC</b>                     | HPLC-UV DAD     | LOQ: <0.3% total THC (Full spectrum)   | <b>0.097</b>     | PASS      |
| <b>Pesticide Panel</b>                      | HPLC-QQQ        | LOQ: Complies with CDPHE 6 CCR 1010-21 Industrial Hemp Extract                                     | <b>Below LOQ</b> | PASS      |
| <b>Microbial</b><br>Escherichia coli (STEC) | PCR             | Complies with CDPHE 6 CCR 1010-21 - LOQ 1 CFU/25 gram**  | <b>Absent</b>    | PASS      |
| <b>Microbial</b><br>Salmonella              | PCR             | Complies with CDPHE 6 CCR 1010-21 - LOQ 1 CFU/25 gram  | <b>Absent</b>    | PASS      |
| <b>Microbial</b><br>Yeast and Mold          | Culture Plating | Complies with CDPHE 6 CCR 1010-21 - LOQ 10 <sup>2</sup> CFU/gram                                   | <b>Below LOQ</b> | PASS      |
| <b>Microbial</b><br>Total Coliforms         | Culture Plating | Complies with CDPHE 6 CCR 1010-21 - LOQ 10 <sup>2</sup> CFU/gram                                   | <b>Below LOQ</b> | PASS      |
| <b>Microbial</b><br>Total Aerobic Count     | Culture Plating | Complies with CDPHE 6 CCR 1010-21 - LOQ 10 <sup>3</sup> CFU/gram                                   | <b>Below LOQ</b> | PASS      |
| <b>Heavy Metals</b>                         | ICP-MS          | Arsenic (As): ≤1.5 ppm†<br>Cadmium (Cd): ≤0.5 ppm<br>Lead (Pb): ≤0.5 ppm<br>Mercury (Hg): ≤1.5 ppm | <b>Below LOQ</b> | PASS      |
| <b>Mycotoxins</b>                           | ICP-MS          | Total Aflatoxins <20 ppb††<br>Aflatoxin B1 < 20 ppb<br>Ochratoxin < 20 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<sup>2</sup>=100  
 10<sup>3</sup>=1,000


Quality Certified Cody Elbrader 02/15/2022  
 Cody Elbrader \_\_\_\_\_  
 Quality Assurance Technician Date


**27275**

|   |  |                                    |                      |
|---|--|------------------------------------|----------------------|
| Batch ID or Lot Number:<br><b>C0727-001</b> | Test:<br><b>Potency</b>  | Reported:<br><b>8/17/21</b>        |                      |
| Matrix:<br>Solution                         | Test ID:<br>T000155479   | Started:<br>8/12/21                | USDA License:<br>N/A |
| Status:<br>N/A                              | Method:<br>TM14 (HPLC-DAD): Potency -<br>Standard Cannabinoid Analysis<br>(Colorado Panel) | Received:<br>08/05/2021 @ 12:37 PM | Sampler ID:<br>N/A   |

## CANNABINOID PROFILE

| Compound                                     | LOD (mg/mL) | LOQ (mg/mL) | Result (mg/mL) | Result (mg/g) | Notes               |
|--|-------------|-------------|----------------|---------------|---------------------|
| Delta 9-Tetrahydrocannabinolic acid (THCA-A) | 0.132       | 0.438       | ND             | ND            | Density = 0.945g/mL |
| Delta 9-Tetrahydrocannabinol (Delta 9THC)    | 0.149       | 0.494       | 0.970          | 1.03          |                     |
| Cannabidiolic acid (CBDA)                    | 0.220       | 0.524       | ND             | ND            |                     |
| Cannabidiol (CBD)                            | 0.214       | 0.511       | 32.121         | 33.99         |                     |
| Delta 8-Tetrahydrocannabinol (Delta 8THC)    | 0.164       | 0.544       | ND             | ND            |                     |
| Cannabinolic Acid (CBNA)                     | 0.094       | 0.312       | ND             | ND            |                     |
| Cannabinol (CBN)                             | 0.043       | 0.143       | 0.098*         | 0.1*          |                     |
| Cannabigerolic acid (CBGA)                   | 0.138       | 0.457       | ND             | ND            |                     |
| Cannabigerol (CBG)                           | 0.033       | 0.109       | 2.561          | 2.71          |                     |
| Tetrahydrocannabivarinic Acid (THCVA)        | 0.116       | 0.386       | ND             | ND            |                     |
| Tetrahydrocannabivarin (THCV)                | 0.030       | 0.099       | ND             | ND            |                     |
| Cannabidivarinic Acid (CBDVA)                | 0.092       | 0.218       | ND             | ND            |                     |
| Cannabidivarin (CBDV)                        | 0.051       | 0.121       | 0.183          | 0.19          |                     |
| Cannabichromenic Acid (CBCA)                 | 0.053       | 0.176       | ND             | ND            |                     |
| Cannabichromene (CBC)                        | 0.058       | 0.192       | ND             | ND            |                     |
| <b>Total Cannabinoids</b>                    |             |             | <b>35.933</b>  | <b>38.02</b>  |                     |
| Total Potential THC**                        |             |             | 0.970          | 1.03          |                     |
| Total Potential CBD**                        |             |             | 32.121         | 33.99         |                     |

  
 Daniel Weidensaul  
 17-Aug-2021  
 01:50 PM

  
 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.

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.



CDPHE Certified



Certificate #4329.02

**27275**

Batch ID or Lot Number: **C0727-001**      Test: **Pesticides**      Reported: **8/11/21**

Matrix: Concentrate      Test ID: T000155480      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

PREPARED BY / DATE

APPROVED BY / DATE

### Definitions

LOQ = Limit of Quantification  
ppb = Parts per Billion

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Certificate #4329.02

Prepared for:

**JOY ORGANICS**
**OFTKL900**


|  |  |                             |   |
|--|--|-----------------------------|---|
| Batch ID or Lot Number:<br><b>22041A</b> | Test:<br><b>Microbial Contaminants</b> | Reported:<br><b>2/14/22</b> | Location:<br>5042 Technology Parkway Ste. 50<br>FT. COLLINS, CO 80528 |
|--|--|-----------------------------|---|


|                             |                        |                     |                      |
|-----------------------------|------------------------|---------------------|----------------------|
| Matrix:<br>Finished Product | Test ID:<br>T000192167 | Started:<br>2/11/22 | USDA License:<br>N/A |
|-----------------------------|------------------------|---------------------|----------------------|

|                |   |                                    |                    |
|----------------|---|------------------------------------|--------------------|
| Status:<br>N/A | Methods:<br>TM25 (qPCR)<br>TM24, TM26, TM27(Culture Plating):<br>Microbial (Colorado Panel) | Received:<br>02/10/2022 @ 01:34 PM | Sampler ID:<br>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>E. coli (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        |   |


 Brianne Maillot  
 2/14/2022  
 3:50:00 PM


 Brett Hudson  
 2/14/2022  
 4:41:00 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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**27275**

|   |  |                                    |                      |
|---|--|------------------------------------|----------------------|
| Batch ID or Lot Number:<br><b>C0727-001</b> | Test:<br><b>Metals</b>                                     | Reported:<br><b>8/13/21</b>        |                      |
| Matrix:<br>Unit Co                          | Test ID:<br>T000155482                                     | Started:<br>8/12/21                | USDA License:<br>N/A |
| Status:<br>N/A                              | Method:<br>TM19 (ICP-MS); Heavy Metals<br>(Colorado Panel) | Received:<br>08/05/2021 @ 12:37 PM | Sampler ID:<br>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

PREPARED BY / DATE


 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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**27275**


|   |   |                                    |                      |
|---|---|------------------------------------|----------------------|
| Batch ID or Lot Number:<br><b>C0727-001</b> | Test:<br><b>Mycotoxins</b>  | Reported:<br><b>8/12/21</b>        |                      |
| Matrix:<br>Concentrate                      | Test ID:<br>T000155484  | Started:<br>8/11/21                | USDA License:<br>N/A |
| Status:<br>N/A                              | Method:<br>TM18 (UHPLC-QQQ LCMS/MS):<br>Mycotoxins (Colorado Panel) | Received:<br>08/05/2021 @ 12:37 PM | Sampler ID:<br>N/A   |

### MYCOTOXIN DETERMINATION

| Compound                                     | Dynamic Range (ppb) | Result (ppb) | Notes |
|--|---------------------|--------------|-------|
| Ochratoxin A                                 | 5.2 - 139.9         | ND           | N/A   |
| Aflatoxin B1                                 | 1 - 36.2            | ND           |       |
| Aflatoxin B2                                 | 1.1 - 35.4          | ND           |       |
| Aflatoxin G1                                 | 1 - 35.6            | ND           |       |
| Aflatoxin G2                                 | 1.2 - 34.3          | ND           |       |
| <b>Total Aflatoxins (B1, B2, G1, and G2)</b> |                     | ND           |       |

  
 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)

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27275


|   |  |                                    |                      |
|---|--|------------------------------------|----------------------|
| Batch ID or Lot Number:<br><b>C0727-001</b> | Test:<br><b>Residual Solvents</b>                            | Reported:<br><b>8/12/21</b>        |                      |
| Matrix:<br>N/A                              | Test ID:<br>T000155483                                       | Started:<br>8/11/21                | USDA License:<br>N/A |
| Status:<br>N/A                              | Methods:<br>TM04 (GC-MS): Residual Solvents (Colorado Panel) | Received:<br>08/05/2021 @ 12:37 PM | Sampler ID:<br>N/A   |

### RESIDUAL SOLVENTS DETERMINATION

| Solvent                          | Dynamic Range (ppm) | Result (ppm) | Notes |
|----------------------------------|---------------------|--------------|-------|
| Propane                          | 79 - 1585           | *ND          |       |
| Butanes<br>(Isobutane, n-Butane) | 149 - 2976          | *ND          |       |
| Methanol                         | 55 - 1102           | *ND          |       |
| Pentane                          | 81 - 1628           | *ND          |       |
| Ethanol                          | 87 - 1740           | *ND          |       |
| Acetone                          | 90 - 1792           | *ND          |       |
| Isopropyl Alcohol                | 99 - 1978           | *ND          |       |
| Hexane                           | 6 - 110             | *ND          |       |
| Ethyl Acetate                    | 91 - 1819           | *ND          |       |
| Benzene                          | 0 - 4               | *ND          |       |
| Heptanes                         | 86 - 1728           | *ND          |       |
| Toluene                          | 16 - 329            | *ND          |       |
| Xylenes<br>(m,p,o-Xylenes)       | 121 - 2429          | *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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