

# CERTIFICATE OF ANALYSIS

## ISO/IEC 17025:2017 ACCREDITATION #103104



Order #: 76305  
 Order Name: CBD Tincture 50 mg/mL  
 Batch#: 21103GLX50  
 Received: 05/04/2021  
 Completed: 05/08/2021

Ratoon  
 5290 NC 226 S.  
 Marion NC, 28752  
 (828) 273-9114  
 jamie@ratoonagroprocessing.com



### Sample



<b>0.241%</b> D9-THC	<b>6.363%</b> Total CBD
<b>65.5 mg</b> Cannabinoids per mL	<b>60.1 mg</b> CBD per mL

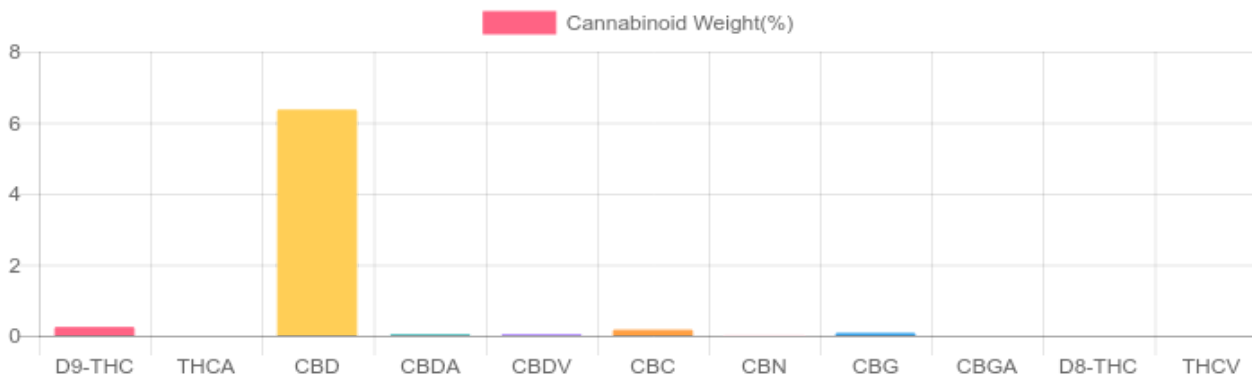
### Cannabinoids Test

SHIMADZU INTEGRATED UPLC-PDA  
 GSL SOP 400

UPLOADED: 05/06/2021 09:40:45

Cannabinoids	LOQ	weight(%)	mg/g	mg/mL
D9-THC	10 PPM	0.241%	2.415	2.282
THCA	10 PPM	N/D	N/D	N/D
CBD	10 PPM	6.363%	63.631	60.131
CBDA	20 PPM	0.040%	0.400	0.378
CBDV	20 PPM	0.035%	0.348	0.329
CBC	10 PPM	0.170%	1.700	1.607
CBN	10 PPM	0.006%	0.061	0.058
CBG	10 PPM	0.079%	0.786	0.743
CBGA	20 PPM	N/D	N/D	N/D
D8-THC	10 PPM	N/D	N/D	N/D
THCV	10 PPM	N/D	N/D	N/D
TOTAL D9-THC		0.241%	0.241%	2.3
TOTAL CBD*		6.363%	63.631	60.1
TOTAL CANNABINOIDS		6.934%	69.341	65.5

1 mL = 1 ml per mL x density (0.945) x Cannabinoid concentration



Reporting Limit 10 ppm  
 \*Total CBD = CBD + CBDA x 0.877  
 N/D - Not Detected, B/LOQ - Below Limit of Quantification

Dr. Andrew Hall, Ph.D., Chief Scientific Officer

Ben Witten, MS, MT., Lab Director

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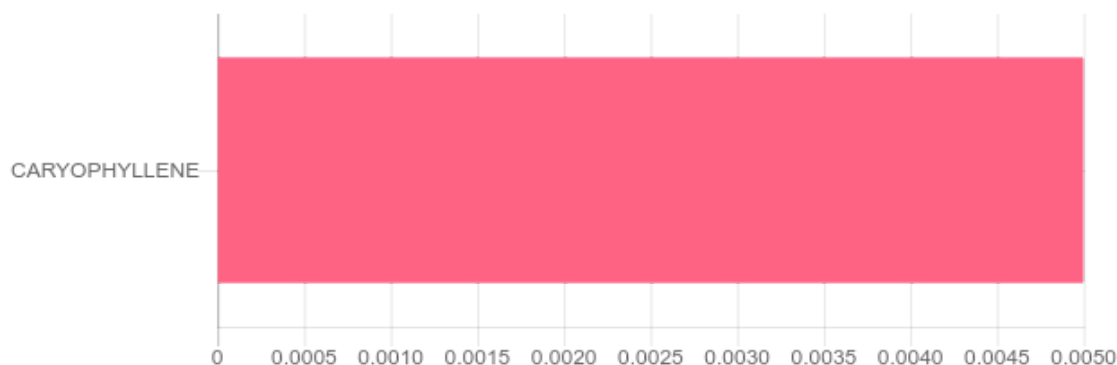
### TERPENES: TOTAL (0.005%)

Headspace GCMS - Shimadzu GCMS QP2020 with HS20

GSL SOP 404  
Prepared: 05/05/2021 19:50:07  
Uploaded: 05/06/2021 08:16:39

Terpene	Results (%)	LOQ (%)	LOD (%)
CARYOPHYLLENE	0.005%	0.003%	0.001%

### Top Terpenes Results:



### Tested for but below loq:

ALPHA-PINENE, CAMPHENE, BETA-MYRCENE, BETA-PINENE, 3-CARENE, ALPHA-TERPINENE, TRANS-BETA-OCIMENE, LIMONENE, P-CYMENE, CIS-BETA-OCIMENE, EUCALYPTOL, GAMMA-TERPINENE, TERPINOLENE, LINALOOL, ISOPULEGOL, GERANIOL, CIS-NEROLIDOL, TRANS-NEROLIDOL, GUAIOL, CARYOPHYLLENE OXIDE, ALPHA-BISABOLOL

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### PESTICIDE ANALYSIS:

GSL SOP 401

PREPARED: 05/05/2021 20:00:34

UPLOADED: 05/06/2021 12:44:17

GCMS-MS - Shimadzu GCMS-TQ8040

Pesticide	Action Level (ppm)	Results (ppm)	LOQ (ppm)	LOD (ppm)
CAPTAN	3.000	N/D	0.003	0.001
CHLORDANE	0.100	N/D	0.003	0.001
CHLORFENAPYR	0.100	N/D	0.003	0.001
COUMAPHOS	0.100	N/D	0.003	0.001


Pesticide	Action Level (ppm)	Results (ppm)	LOQ (ppm)	LOD (ppm)
CYFLUTHRIN	1.000	N/D	0.003	0.001
CYPERMETHRIN	1.000	N/D	0.003	0.001
PENTACHLORONITROBENZENE	0.200	N/D	0.003	0.001

LCMS-MS - Shimadzu LCMS-8060

Pesticide	Action Level (ppm)	Results (ppm)	LOQ (ppm)	LOD (ppm)
ABAMECTIN B1A	0.300	N/D	0.005	0.001
ACEPHATE	3.000	N/D	0.001	0.001
ACEQUINOCYL	2.000	N/D	0.001	0.001
ACETAMIPRID	3.000	N/D	0.005	0.001
ALDICARB	0.100	N/D	0.005	0.001
AZOXYSTROBIN	3.000	N/D	0.001	0.001
BIFENAZATE	3.000	N/D	0.005	0.001
BIFENTHRIN	0.500	N/D	0.005	0.001
BOSCALID	3.000	N/D	0.005	0.001
CARBARYL	0.500	N/D	0.003	0.001
CARBOFURAN	0.100	N/D	0.001	0.001
CHLORANTRANILIPROLE	3.000	N/D	0.005	0.005
CHLORMEQUAT CHLORIDE	3.000	N/D	0.025	0.025
CHLORPYRIFOS	0.100	N/D	0.001	0.001
CLOFENTEZINE	0.500	N/D	0.001	0.001
DAMINOZIDE	0.100	N/D	0.005	0.001
DIAZINON	0.200	N/D	0.001	0.001
DICHLORVOS	0.100	N/D	0.005	0.001
DIMETHOATE	0.100	N/D	0.001	0.001
DIMETHOMORPH	3.000	N/D	0.005	0.001
ETHOPROPHOS	0.100	N/D	0.001	0.001
ETOFENPROX	0.100	N/D	0.001	0.001
ETOXAZOLE	1.500	N/D	0.010	0.005
FENHEXAMID	3.000	N/D	0.005	0.001
FENOXYCARB	0.100	N/D	0.005	0.001
FENPYROXIMATE	2.000	N/D	0.001	0.001
FIPRONIL	0.100	N/D	0.003	0.001
FLONICAMID	2.000	N/D	0.025	0.010
FLUDIOXONIL	3.000	N/D	0.003	0.001
HEXYTHIAZOX	2.000	N/D	0.005	0.001

Pesticide	Action Level (ppm)	Results (ppm)	LOQ (ppm)	LOD (ppm)
IMAZALIL	0.100	N/D	0.005	0.001
IMIDACLOPRID	3.000	N/D	0.005	0.001
KRESOXIM-METHYL	1.000	N/D	0.010	0.005
MALATHION	2.000	N/D	0.005	0.001
METALAXYL	3.000	N/D	0.001	0.001
METHIOCARB	0.100	N/D	0.005	0.001
METHOMYL	0.100	N/D	0.001	0.001
MEVINPHOS	0.100	N/D	0.001	0.001
MYCLOBUTANIL	3.000	N/D	0.005	0.001
NALED	0.500	N/D	0.005	0.001
OXAMYL	0.500	N/D	0.001	0.001
PACLOBUTRAZOL	0.100	N/D	0.005	0.001
PERMETHRINS	1.000	N/D	0.005	0.001
PHOSMET	0.200	N/D	0.005	0.001
PIPERONYL BUTOXIDE	3.000	N/D	0.001	0.001
PRALLETHRIN	0.400	N/D	0.005	0.005
PROPICONAZOLE	1.000	N/D	0.010	0.005
PROPOXUR	0.100	N/D	0.001	0.001
PYRETHRINS (PYRETHRIN I)	1.000	N/D	0.005	0.005
PYRIDABEN	3.000	N/D	0.005	0.001
SPINETORAM	3.000	N/D	0.001	0.001
SPINOSAD	3.000	N/D	0.001	0.001
SPIROMESIFEN	3.000	N/D	0.005	0.001
SPIROTETRAMAT	3.000	N/D	0.001	0.001
SPIROXAMINE	0.100	N/D	0.001	0.001
TEBUCONAZOLE	1.000	N/D	0.005	0.001
THIACLOPRID	0.100	N/D	0.001	0.001
THIAMETHOXAM	1.000	N/D	0.001	0.001
TRIFLOXYSTROBIN	3.000	N/D	0.001	0.001

N/D = Not Detected, A/LOQ = Above LOQ Level, B/LOQ = Below LOQ Level, B/LOD = Below LOD Level

  
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 Ben Witten, MS, MT., Lab Director

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### RESIDUAL SOLVENTS:

Headspace GCMS - Shimadzu GCMS QP2020 with HS20

GSL SOP 405

**Prepared:** 05/05/2021 17:53:38

**Uploaded:** 05/06/2021 12:11:45

Residual Solvent	Action Level (ppm)	Results (ppm)	LOQ (ppm)	LOD (ppm)
1,1-DICHLOROETHENE	8	N/D	0.63	0.63
1,2- DICHLOROETHANE	2	N/D	0.12	0.02
ACETONE	5,000	N/D	140	20
ACETONITRILE	410	N/D	25	1
BENZENE	1	N/D	1	0.5
BUTANE	5,000	N/D	50	10
CHLOROFORM	1	N/D	1	0.5
CIS 1,2-DICHLOROETHENE	5	N/D	0.73	0.18
ETHANOL	5,000	N/D	140	20
ETHYL ACETATE	5,000	N/D	140	20
ETHYL ETHER	5,000	N/D	140	20
ETHYLENE OXIDE	1	N/D	0	0
ISOPROPYL ALCOHOL	5,000	N/D	140	20
METHANOL	3,000	N/D	100	20
METHYLENE CHLORIDE	125	N/D	0.15	0.15
N-HEPTANE	5,000	N/D	140	20
N-HEXANE	290	N/D	18	10
PENTANE	5,000	N/D	140	20
PROPANE	5,000	N/D	20	1
TOLUENE	890	N/D	53	1
TRANS 1,2-DICHLOROETHENE	5	N/D	0.73	0.18
TRICHLOROETHENE	1	N/D	1	0.5
XYLENES	150	N/D	130	20

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### Microbial Analysis:

**Microbial Analysis** GSL SOP 406

PCR - Agilent AriaMX

**Uploaded:** 05/06/2021 17:36:24

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### MICROBIAL ANALYSIS:

PCR - Agilent AriaMX

Test	SOP	Test Method	Device Used	LOD	Allowable Criteria	Actual Result	Pass/Fail
TOTAL YEAST AND MOLD	406.01	USP 61/62†	ARIAMX PCR	CFU/G BY SAMPLE TYPE**	1,000 CFU/G	NOT DETECTED	PASS

† USP 61 (enumeration of bacteria TAC, TYM, and ENT/Coliform), USP 62 (identifying specific species E.coli Aspergillus etc)

\* STEC and Salmonella run as Multiplex

\*\* CFU/g Calculation based on MIP/Extract matrix

\*\*\* Flavus = 2 Copies of DNA / Fumigatis = 2 Copies of DNA Niger = 20 Copies of DNA / Terrus = 10 copies of DNA

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### Mycotoxin Analysis:

LC-MS - Shimadzu LCMS-8060  
GSL SOP 401

Uploaded: 05/06/2021 12:44:07

Analyte	Action Lvl (ppb)	Results (ppb)
AFLATOXIN B1	20	N/D
AFLATOXIN B2	20	N/D
AFLATOXIN G1	20	N/D
AFLATOXIN G2	20	N/D
OCHRATOXIN A	20	N/D

LOQ is 1ppb, LOD is 1ppb

### Heavy Metals Analysis:

ICP-MS - Shimadzu ICPMS-2030  
GSL SOP 403

Uploaded: 05/06/2021 17:08:09

Metal	Action Level (ppb)	Result (ppb)
ARSENIC (AS)	200	B/LOQ
CADMIUM (CD)	200	B/LOQ
MERCURY (HG)	100	B/LOQ
LEAD (PB)	500	B/LOQ

Lower Limit of Quantitation (LOQ) is 75 ppb

### Filth and Foreign Materials Analysis:

Microscope - Amscope Simul-Focal Trinocular Stereo Zoom Microscope - GSL SOP 409

Uploaded: 05/07/2021 09:58:48

Pass: No Foreign Materials Detected

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