

## SUMMARY OF ANALYSIS (SAMPLE ID: SA26916)

<b>Testing Location:</b> OKC 3680 E. I-240 Service Rd. Oklahoma City, OK 73135	<b>Customer ID: 4</b> Bison Extracts 1420 S Joplin Ave Tulsa, OK 74112 License: PAAA-4KW0-GFNQ	<b>Order ID: OR8389</b> <b>Lot Number:</b> 6994 <b>Batch Number:</b> Not Entered	<b>Sample Type: Primary</b> <b>Matrix: Concentrate</b> <b>Mass: 3g</b> <b>Date Collected: 05/12/2020</b> <b>Date Received: 05/12/2020</b>
<b>Cultivar (Strain) or Sample Description:</b> Bruce Banner CBD			<b>Date Completed: 05/14/2020</b>

\*This page is simply a summary of the analysis performed. For analytical details, please consult the individual Certificate(s) of Analysis for each of the specific test(s) performed.

\*For Oklahoma, with the new OMMA rules to be effective April 1, 2020, limits on moisture are proposed at 15% and water activity at 0.65aw.

<b>Moisture Content (%)</b> Not Tested	<b>PASS/FAIL</b> N/A	<b>Water Activity (aw)</b> Not Tested	<b>PASS/FAIL</b> N/A
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<b>Cannabinoids (Top 3)</b>	<b>(%)</b>	<b>mg/g</b>
Δ9-THC	58.5	585
THCa	8.01	80
CBC	1.1	11
TOTAL CBD	1.23	12
TOTAL THC	65.6	656
TOTAL CANNABINOIDS	71.2	712

<b>Terpenes (Top 5)</b>	<b>(%)</b>	<b>µg/g</b>
d-Limonene	1.509	15090
Linalool	1.403	14026
β-Caryophyllene	0.843	8430
β-Ocimene	0.435	4351
α-Humulene	0.430	4305
TOTAL TERPENES	5.44	54412

<b>Contaminants</b>	<b>PASS/FAIL</b>
Heavy Metals:	PASS
Microbiology:	PASS
Mycotoxins:	PASS
Pesticides:	PASS
Residual Solvents:	PASS
Visual Inspection:	PASS



Scan the QR code to verify results.

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*Kyle W. Felling*  
Kyle W. Felling, Ph.D.  
Laboratory Director



## CERTIFICATE OF ANALYSIS (SAMPLE ID: SA26916)

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**Cultivar (Strain) or Sample Description:** Bruce Banner CBD **Date Completed:** 05/14/2020

### CANNABINOID (POTENCY) PROFILE

**Analysis Date/Time:** 05/12/2020 1634

**Method:** HPLC/DAD

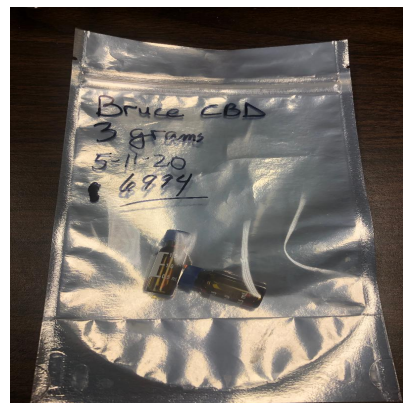
**Moisture Content (%):** -

**Analyst:** WW

**Instrument:** Agilent 1100

**Water Activity (aw):** -

Cannabinoid	Result (%)	Result (mg/g)	Reporting Limit (mg/g)	Result (mg/mL)	Per Unit (mg)
CBD	0.824	8.24	0.498	-	8
CBDa	0.466	4.66	0.498	-	5
CBDv	-	-	0.498	-	-
Δ9-THC	58.5	585	0.498	-	585
Δ8-THC	-	-	0.498	-	-
THCa	8.01	80.1	0.498	-	80
THCv	0.467	4.67	0.498	-	5
CBC	1.1	11	0.498	-	11
CBG	0.832	8.32	0.498	-	8
CBGa	0.596	5.96	0.498	-	6
CBN	0.382	3.82	0.498	-	4
<b>TOTAL</b>	<b>71.2</b>	<b>712</b>			<b>712</b>
<b>TOTAL THC</b>	<b>65.6</b>	<b>656</b>			<b>656</b>
<b>TOTAL CBD</b>	<b>1.23</b>	<b>12</b>			<b>12</b>

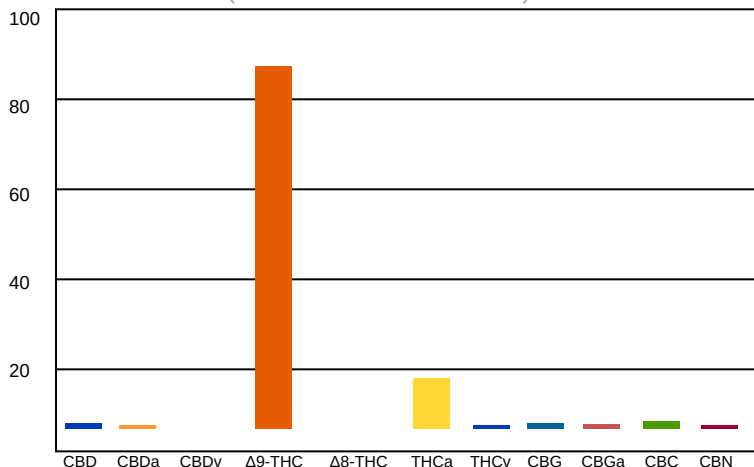


**UNIT MASS (g):** 1

"-" Not detected above RL.

### Cannabinoid Distribution

(% of Total Cannabinoids)



Deviations from standard operating procedure: None

Recoveries for all analyte standards: 90-110%  
Replicate Uncertainties: <5% RSD, <20% RPD  
Sample/Reagent Blanks: <RL for all analytes

Values for plant matter are adjusted for moisture content.

Total THC = (THCa x 0.877) + Δ9-THC  
Total CBD = (CBDa x 0.877) + CBD

Percentage results are reported by mass.  
mg/g results are reported as mass component per mass material.

Abbreviations: UV - Ultraviolet, HPLC - High Pressure Liquid Chromatography, RL - Reporting Limit, RPD - Relative Percent Difference, RSD - Relative Standard Deviation

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<b>Cultivar (Strain) or Sample Description:</b> Bruce Banner CBD			<b>Date Completed:</b> 05/14/2020

**TERPENOID PROFILE**

**Analysis Date/Time:** 05/12/2020 1634      **Method:** HS/GC/FID (Internal Method-002)      **Deviations from SOP:**  
**Analyst:** DJ      **Instrument:** Agilent 6890      None

<u>Terpene</u>	<u>Result (µg/g)</u>	<u>Result (%)</u>	
α-Bisabolol	-	-	
Camphene	-	-	
δ-3-Carene	-	-	
β-Caryophyllene	8430	0.843	■
Caryophyllene oxide	-	-	
p-Cymene	-	-	
Eucalyptol	-	-	
Geraniol	-	-	
Guaiol	-	-	
α-Humulene	4305	0.43	■
Isopulegol	-	-	
d-Limonene	15090	1.51	■
Linalool	14026	1.4	■
β-Myrcene	3588	0.359	■
cis-Nerolidol	984	0.0984	■
trans-Nerolidol	-	-	
α-Ocimene	-	-	
β-Ocimene	4351	0.435	■
α-Pinene	-	-	
β-Pinene	3639	0.364	■
α-Terpinene	-	-	
γ-Terpinene	-	-	
Terpinolene	-	-	
<b>TOTAL</b>	<b>54412</b>	<b>5.44</b>	



*Abbreviations:* HS - Headspace, GC - Gas Chromatography, MS - Mass Spectrometry, RL - Reporting Limit

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"-" Not detected above RL.

**Reporting Limit (µg/g): 19.9**

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**Cultivar (Strain) or Sample Description:** Bruce Banner CBD **Date Completed:** 05/14/2020

## RESIDUAL SOLVENT PROFILE

**Analysis Date/Time:** 05/12/2020 1634  
**Analyst:** CC

**Method:** USP <467>  
**Instrument:** Agilent 6890

**Deviations from SOP:**  
None

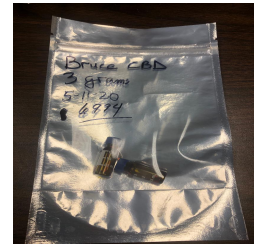
<u>Solvent</u>	<u>Result (µg/g)</u>	<u>Action Level (µg/g)</u>
Acetone (67-64-1)	-	1000
Benzene (71-43-2)	-	2
n-Butane (106-97-2)	-	1000
2,2-Dimethylbutane (75-83-2)	-	60
2,3-Dimethylbutane (79-29-8)	-	60
Ethyl benzene (100-41-4)	-	430
n-Heptane (142-82-5)	-	1000
n-Hexane (110-54-3)	-	60
Isobutane (75-28-5)	-	1000
Isopropanol (67-63-0)	-	1000
2-Methylbutane (78-78-4)	-	1000
2-Methylpentane (107-83-5)	-	60
3-Methylpentane (96-10-0)	-	60
n-Pentane (109-66-0)	-	1000
n-Propane (74-98-6)	-	1000
Toluene (108-88-3)	-	180
o-Xylene (95-47-6)	-	430
m,p-Xylene (108-38-3 or 106-42-3)	-	430
Xylenes* (1330-20-7)	-	430

<u>Color Key</u>
RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

**Reporting Limit (µg/g)**  
1/2 of AL

"-" not detected above reporting limit

"\*" - o,m,p-Xylene and Ethylbenzene



<u>Solvent</u>	<u>Synonym(s)</u>	<u>Solvent</u>	<u>Synonym(s)</u>	<u>Solvent</u>	<u>Synonym(s)</u>
Acetonitrile	Methyl Cyanide, ACN	2-Ethoxyethanol	Cellosolve, Ethyl glycol	Methanol	Methyl alcohol
1-Butanol	n-Butanol, Butyl Alcohol	Ethyl ether	Diethyl ether, Ether	2-Methylbutane	Isopentane
2-Butanol	sec-Butyl alcohol	Ethyl acetate	EtOAc	Methylene chloride	Dichloromethane
2-Butanone	Methyl ethyl ketone, MEK	Ethyl benzene	Phenylethane	2-Methylpentane	Isohexane
1,2-Dimethoxyethane	Monoglyme	Ethylene glycol	1,2-Ethanediol	1-Pentanol	n-Amyl alcohol
2,3-Dimethylbutane	Neohexane	Ethylene oxide	Oxirane	1-Propanol	Propyl alcohol
2,3-Dimethylbutane	Diisopropyl	Isobutane	2-Methylpropane	Tetrahydrofuran	THF
N,N-Dimethylformamide	DMF	Isopropanol	2-Propanol, IPA	Tetramethylene sulfone	Sulfolane
Dimethylsulfoxide	DMSO	Isopropyl Acetate	Acetic acid isopropyl ester	Xylene	Dimethylbenzene

**Abbreviations:** HS-Headspace, GC-Gas Chromatography, MS-Mass Spectrometry, RL-Reporting Limit, AL-Action Level  
CAS-Chemical Abstract Services

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**Cultivar (Strain) or Sample Description:** Bruce Banner CBD **Date Completed:** 05/14/2020

**PESTICIDES PROFILE**

**Analysis Date/Time:** 05/12/2020 1634  
**Analyst:** DJ

**Method:** LC/MS/MS  
**Instrument:** Waters Acquity/TQD

**Deviations from SOP:**  
None

<u>Pesticide</u>	<u>Result (µg/g)</u>	<u>Action Level (µg/g)</u>
Abamectin (71751-41-2)	-	0.5
Azoxystrobin (131860-33-8)	-	0.5
Bifenazate* (149877-41-8)	-	0.5
Etoazazole (153233-91-1)	-	0.5
Imazalil (35554-44-0)	-	0.5
Imidacloprid (138261-41-3)	-	0.5
Malathion (121-75-5)	-	0.5
Myclobutanil (88671-89-0)	-	0.5
Permethrins* (52645-53-1)	-	0.5
Spinosad A (168316-95-8)	-	0.5
Spinosad D (168316-95-8)	-	0.5
Spiromesifen (283594-90-1)	-	0.5
Spirotetramat (203313-25-1)	-	0.5
Tebuconazole (80443-41-0)	-	0.5

Color Key

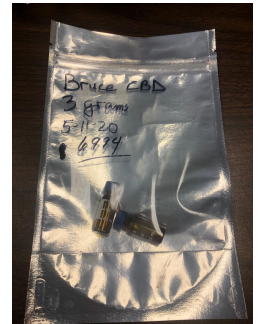
RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

**Reporting Limit (µg/g)**  
1/2 of AL

"-" not detected above reporting limit

"\*" analyzed by GC/MS (all others analyzed by LC/MS/MS)

Permethrins measured as the cumulative residue of the *cis*- and *trans*-permethrin isomers.



**Abbreviations:** LC - Liquid Chromatography, GC - Gas Chromatography, MS - Mass Spectrometry, RL - Reporting Limit, AL - Action Level, CAS - Chemical Abstract Services

<u>Pesticide</u>	<u>Synonym(s)</u>	<u>Pesticide</u>	<u>Synonym(s)</u>	<u>Pesticide</u>	<u>Synonym(s)</u>
Cyfluthrin	Baythroid	Myclobutanil	Systhane	Propiconazole	Tilt
DDVP	Dichlorvos	Naled	Dibrom	Propoxur	Baygon
Ethoprophos	Prophos	Phosmet	Imidan		

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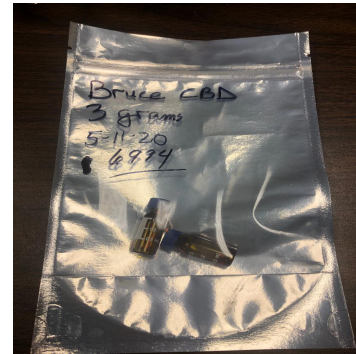
**MYCOTOXIN PROFILE**

**Analysis Date/Time:** 05/12/2020 1634  
**Analyst:** DJ

**Method:** LC/MS/MS  
**Instrument:** Waters Acquity/TQD

**Deviations from SOP:**  
None

<u>Mycotoxin</u>	<u>Result (µg/kg)</u>	<u>Action Level (µg/kg)</u>
Aflatoxin B1	-	20
Aflatoxin B2	-	20
Aflatoxin G1	-	20
Aflatoxin G2	-	20
Ochratoxin A	-	20



*Abbreviations:* EC - Escherichia Coli, CFU - Colony-Forming Unit, RL - Reporting Limit, AL - Action Level

**Color Key**

RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

**Reporting Limit (CFU/g)**  
1

"-" not detected above reporting limit

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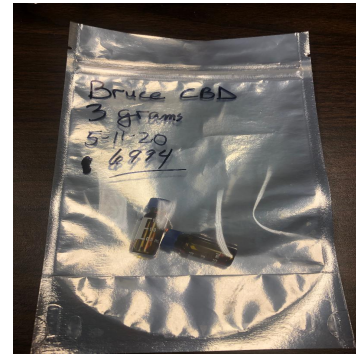
**HEAVY METAL PROFILE**

**Analysis Date/Time:** 05/12/2020 1634  
**Analyst:** CC

**Method:** ICP/MS  
**Instrument:** PerkinElmer Elan 9000

**Deviations from SOP:**  
None

<u>Heavy Metal</u>	<u>Result (µg/kg)</u>	<u>Action Level (µg/kg)</u>
Arsenic (As)	-	400
Cadmium (Cd)	-	440
Lead (Pb)	-	1000
Mercury (Hg)	-	200



*Abbreviations:* ICP - Inductively-Coupled Plasma, OES - Optical Emission Spectroscopy, MS - Mass Spectroscopy, RL - Reporting Limit, AL - Action Level

**Color Key**

RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

**Reporting Limit (µg/kg)**  
50

"-" not detected above reporting limit

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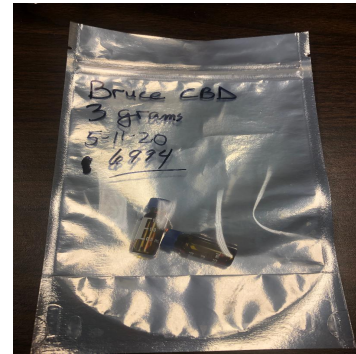
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**MICROBIOLOGICAL PROFILE**

**Analysis Date/Time:** 05/12/2020 1634      **Method:** Hardy Diagnostics CompactDry      **Deviations from SOP:**  
**Analyst:** DJ      **Instrument:** Thermo Incubator      None

<u>Bacteria/Microbe</u>	<u>Result (CFU/g)</u>	<u>Action Level (CFU/g)</u>
Escherichia Coli (E. Coli)	Absent	1
Mold/Yeast	Absent	10000
Salmonella spp.	Absent	1
Staphylococcus Aureus	Absent	1



*Abbreviations:* EC - Escherichia Coli, CFU - Colony-Forming Unit, RL - Reporting Limit, AL - Action Level, TNTC - Too Numerous To Count, NT - Not Tested  
Absent - Not Detected Above RL, Present - Detected Above RL

**Color Key**

RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

**Reporting Limit (CFU/g)**  
1

"-" not detected above reporting limit

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