

CERTIFICATE OF ANALYSIS

Order Type: Medical Cannabis

Customer ID: 328

Harvest/Extract Lot: None

Order ID: OR2019-4223

Customer Name: Minerva Canna

Harvest/Extract Batch: None

Cultivar (Strain): GG #4

Lab ID: SA2019-13580

Sample Matrix: Flower

Sample Date: 10/02/2019

Date Received: 10/02/2019

Date Completed: 10/09/2019

Remarks:

CANNABINOID (POTENCY) PROFILE

Analysis Date/Time: 10/06/2019 0833

Method: HPLC/DAD (Internal Method-001)

Moisture Content (%): 14

Analyst: OL

Instrument: Agilent 1100

Water Activity (aw): -

Cannabinoid	Result (%)	Result (mg/g)	Reporting Limit (mg/g)	Result (mg/mL)	Per Unit (mg)
CBD	-	-	0.0504	-	-
CBDa	0.0472	0.472	0.0504	-	0.472
CBDv	-	-	0.0504	-	-
Δ9-THC	0.602	6.02	0.0504	-	6
Δ8-THC	-	-	0.0504	-	-
THCa	21.4	214	0.0504	-	214
THCv	-	-	0.0504	-	-
CBC	-	-	0.0504	-	-
CBG	-	-	0.0504	-	-
CBGa	0.402	4.02	0.0504	-	4
CBN	-	-	0.0504	-	-
TOTAL	22.5	225			225
TOTAL THC	19.4	194			194
TOTAL CBD	0.0414	0.414			0.414

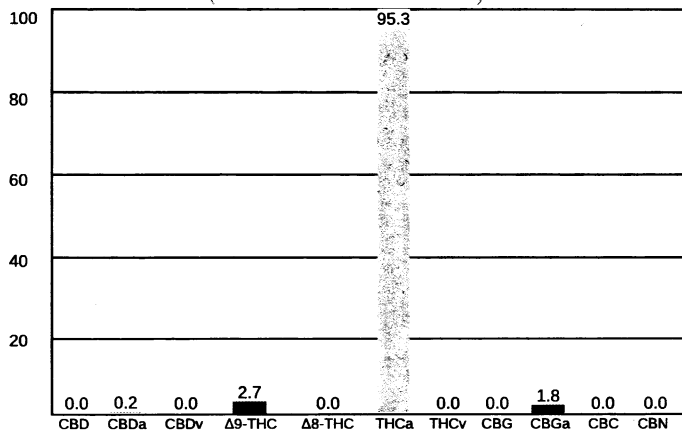


UNIT MASS (g): 1

"-" 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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REPORT OF LABORATORY ANALYSIS

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

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Remarks:

TERPENOID PROFILE

Analysis Date/Time: 10/06/2019 0833
Analyst: OL

Method: HS/GC/FID (Internal Method-002)
Instrument: Agilent 6890

Deviations from SOP:
None

Terpene	Result (µg/g)	Result (%)	
α-Bisabolol	445	0.0445	█
Camphene	-	-	
δ-3-Carene	-	-	
β-Caryophyllene	4716	0.472	██████████
Caryophyllene oxide	-	-	
p-Cymene	-	-	
Eucalyptol	-	-	
Geraniol	-	-	
Guaiol	-	-	
α-Humulene	1426	0.143	██
Isopulegol	-	-	
d-Limonene	950	0.095	██
Linalool	711	0.0711	██
β-Myrcene	1458	0.146	██
cis-Nerolidol	-	-	
trans-Nerolidol	-	-	
α-Ocimene	-	-	
β-Ocimene	-	-	
α-Pinene	113	0.0113	
β-Pinene	317	0.0317	
α-Terpinene	-	-	
γ-Terpinene	-	-	
Terpinolene	-	-	
TOTAL	10136	1.01	



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

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"-" Not detected above RL.

Reporting Limit (µg/g): 2

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Remarks:

PESTICIDES PROFILE

Analysis Date/Time: 10/06/2019 0833
Analyst: OL

Method: LC/MS/MS and GC/MS
Instrument: Waters Acquity/TQD

Deviations from SOP:
None

<u>Pesticide</u>	<u>Result</u> ($\hat{\text{A}}\mu\text{g/g}$)	<u>Action Level</u> ($\hat{\text{A}}\mu\text{g/g}$)
Abamectin (71751-41-2)		0.5
Azoxystrobin (131860-33-8)		0.5
Bifenazate* (149877-41-8)		0.5
Etoxazole (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

1/2 AL < RESULT < AL

Reporting Limit ($\hat{\text{A}}\mu\text{g/g}$)
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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www.FASTLaboratories.com

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Remarks:

MYCOTOXIN PROFILE

Analysis Date/Time: 10/06/2019 0833
Analyst: OL

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

Deviations from SOP:
None

<u>Mycotoxin</u>	<u>Result</u> ($\bar{1}$ / $\bar{4}$ g/kg)	<u>Action Level</u> ($\bar{1}$ / $\bar{4}$ g/kg)
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



Reporting Limit (CFU/g)
1

"-" not detected above reporting limit

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Remarks:

HEAVY METAL PROFILE

Analysis Date/Time: 10/06/2019 0833
Analyst: OL

Method: ICP/MS
Instrument: PerkinElmer Elan 9000

Deviations from SOP:
None

<u>Heavy Metal</u>	<u>Result</u> ($\text{\AA}\mu\text{g/kg}$)	<u>Action Level</u> ($\text{\AA}\mu\text{g/kg}$)
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



Reporting Limit ($\text{\AA}\mu\text{g/kg}$)
50

"-" not detected above reporting limit

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Remarks:

MICROBIOLOGICAL PROFILE

Analysis Date/Time: 10/06/2019 0833
Analyst: OL

Method: Hardy Diagnostics CompactDry
Instrument: Thermo Incubator

Deviations from SOP:
 None

<u>Bacteria/Microbe</u>	<u>Result (CFU/g)</u>	<u>Action Level (CFU/g)</u>
Aerobic Plate Count, Total	NT	-
Escherichia Coli (E. Coli)		1
Mold		10000
Yeast		10000
Salmonella spp.		1



Abbreviations: EC - Escherichia Coli, CFU - Colony-Forming Unit,
 RL - Reporting Limit, AL - Action Level, NT - Not Tested

Color Key

1/2 AL < RESULT < AL

Reporting Limit (CFU/g)
 1

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