

CERTIFICATE OF ANALYSIS

ISO/IEC 17025:2017 ACCREDITATION #103104



Order #: 39025
Order Name: Hopefully-B19-204-19
Batch#: Order-101819
Received: 10/21/2019
Completed: 10/25/2019



Bluhen Botanicals
220 W Jackson Ave, Suite 106
Knoxville TN, 37902
(928) 300-4099
info@bluhenbotanicals.com



Sample



0.015%
D9-THC

14.271%
Total CBD

Cannabinoids Test

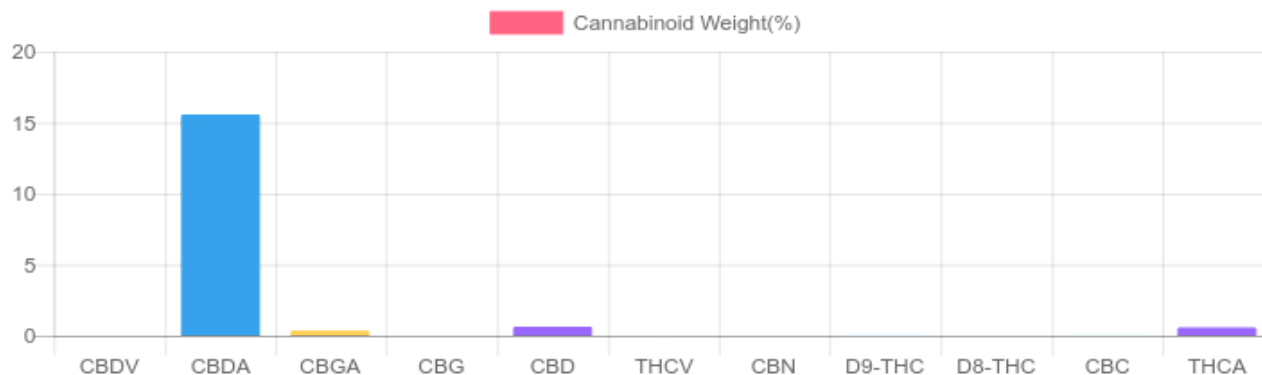
SHIMADZU INTEGRATED UPLC-PDA

GSL SOP 400

PREPARED: 10/21/2019 15:01:15

UPLOADED: 10/22/2019 12:42:02

Cannabinoids	LOQ	weight(%)	mg/g
D9-THC	10 PPM	0.015%	0.148
THCA	10 PPM	0.574%	5.740
CBD	10 PPM	0.620%	6.199
CBDA	20 PPM	15.566%	155.661
CBDV	20 PPM	N/D	N/D
CBC	10 PPM	0.016%	0.164
CBN	10 PPM	N/D	N/D
CBG	10 PPM	N/D	N/D
CBGA	20 PPM	0.352%	3.518
D8-THC	10 PPM	N/D	N/D
THCV	10 PPM	N/D	N/D
TOTAL D9-THC		0.015%	0.015%
TOTAL CBD*		14.271%	142.714
TOTAL CANNABINOIDS		17.143%	171.430



Reporting Limit 10 ppm

*Total CBD = CBD + CBDA x 0.877

N/D - Not Detected, B/LOQ - Below Limit of Quantification



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Accreditation #103104



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TERPENES: TOTAL (0.678%)

Headspace GCMS - Shimadzu GCMS QP2020 with HS20

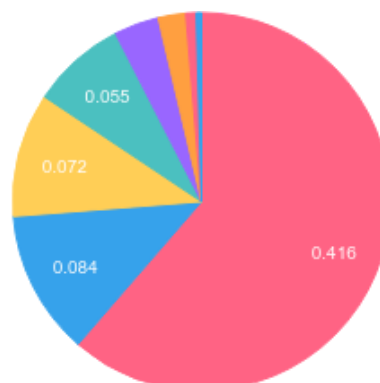
GSL SOP 404

Prepared: 10/21/2019 17:22:50

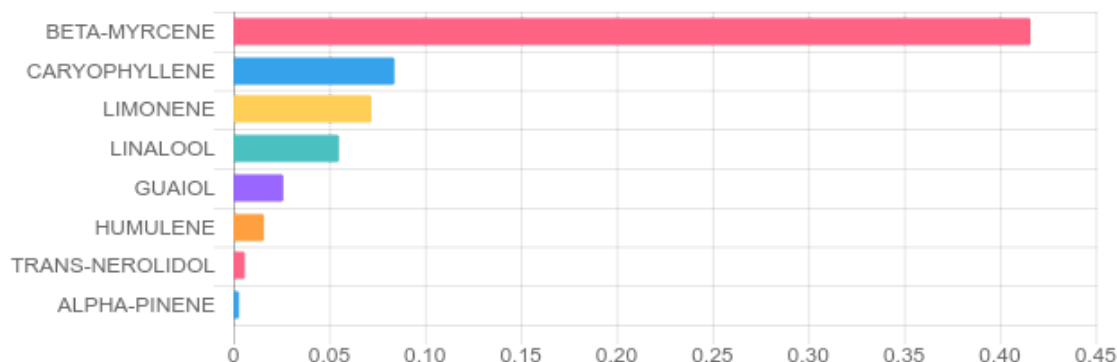
Uploaded: 10/22/2019 16:10:30

Terpene	Results (%)	LOQ (%)	LOD (%)
ALPHA-PINENE	B/LOQ	0.0067%	0.0063%
BETA-MYRCENE	0.416%	0.0067%	0.0063%
CARYOPHYLLENE	0.084%	0.0067%	0.0063%
GUAJOL	0.026%	0.0067%	0.0063%
HUMULENE	0.016%	0.0067%	0.0063%
LIMONENE	0.072%	0.0067%	0.0063%
LINALOOL	0.055%	0.0067%	0.0063%
TRANS-NEROLIDOL	B/LOQ	0.0067%	0.0063%

Terpenes Breakdown



Top Terpenes Results:



Tested for but not present:

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



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PESTICIDE ANALYSIS:

GSL SOP 401

PREPARED: 10/21/2019 17:29:57

UPLOADED: 10/23/2019 11:40:31

GCMS-MS - Shimadzu GCMS-TQ8040

Pesticide	Action Level (ppm)	Results (ppm)	LOQ (ppm)	LOD (ppm)
CAPTAN	0.700	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	2.000	N/D	0.003	0.001
CYPERMETHRIN	1.000	N/D	0.003	0.001
PARATHION-METHYL	0.100	N/D	0.003	0.001
PENTACHLORONITROBENZENE	0.100	N/D	0.003	0.001

LCMS-MS - Shimadzu LCMS-8060

Pesticide	Action Level (ppm)	Results (ppm)	LOQ (ppm)	LOD (ppm)
ABAMECTIN B1A	0.100	N/D	0.005	0.001
ACEPHATE	0.100	N/D	0.001	0.001
ACEQUINOCYL	0.100	N/D	0.001	0.001
ACETAMIPRID	0.100	N/D	0.005	0.001
ALDICARB	0.100	N/D	0.005	0.001
AZOXYSTROBIN	0.100	N/D	0.001	0.001
BIFENAZATE	0.100	N/D	0.005	0.001
BIFENTHRIN	3.000	N/D	0.005	0.001
BOSCALID	0.100	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	10.000	N/D	0.005	0.005
CHLORPYRIFOS	0.100	0.009	0.001	0.001
CLOFENTEZINE	0.100	N/D	0.001	0.001
DAMINOZIDE	0.100	N/D	0.005	0.001
DIAZANON	0.100	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	2.000	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	0.100	N/D	0.010	0.005
FENHEXAMID	0.100	N/D	0.005	0.001
FENOXYCARB	0.100	N/D	0.005	0.001
FENPYROXIMATE	0.100	N/D	0.001	0.001
FIPRONIL	0.100	N/D	0.003	0.001
FLONICAMID	0.100	N/D	0.025	0.010
FLUDIOXONIL	0.100	N/D	0.003	0.001
HEXYTHIAZOX	0.100	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	5.000	N/D	0.005	0.001
KRESOXIM-METHYL	0.100	N/D	0.010	0.005
MALATHION	0.500	N/D	0.005	0.001
METALAXYL	2.000	N/D	0.001	0.001
METHIOCARB	0.100	N/D	0.005	0.001
METHOMYL	1.000	N/D	0.001	0.001
MEVINPHOS	0.100	N/D	0.001	0.001
MYCLOBUTANIL	0.100	N/D	0.005	0.001
NALED	0.100	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	0.500	0.042	0.005	0.001
PHOSMET	0.100	N/D	0.005	0.001
PIPERONYL	3.000	N/D	0.001	0.001
BUTOXIDE				
PRALLETHRIN	0.100	N/D	0.005	0.005
PROPICONAZOLE	0.100	N/D	0.010	0.005
PROPOXUR	0.100	N/D	0.001	0.001
PYRETHRINS				
(PYRETHRIN I)	0.500	N/D	0.005	0.005
PYRIDABEN	0.100	N/D	0.005	0.001
SPINETORAM	0.100	N/D	0.001	0.001
SPINOSAD	0.100	N/D	0.001	0.001
SPIROMESIFEN	0.100	N/D	0.005	0.001
SPIROTETRAMAT	0.100	N/D	0.001	0.001
SPIROXAMINE	0.100	N/D	0.001	0.001
TEBUCONAZOLE	0.100	N/D	0.005	0.001
THIACLOPRID	0.100	N/D	0.001	0.001
THIAMETHOXAM	5.000	N/D	0.001	0.001
TRIFLOXYSTROBIN	0.100	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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Microbial Analysis:

Microbial Analysis GSL SOP 406

Uploaded: 10/24/2019 09:40:26

PCR - Agilent AriaMX

Test	Test Method Used	Device Used	LOD	Allowable Criteria	Actual Result	Pass/Fail
STEC E.COLI*	USP 61/62†	ARIAMX PCR	2 COPIES OF DNA	PRESENCE / ABSENT	BELOW LOD	PASS
SALMONELLA*	USP 61/62†	ARIAMX PCR	5 COPIES OF DNA	PRESENCE / ABSENT	BELOW LOD	PASS
YEAST AND MOLD	USP 61/62†	ARIAMX PCR	0.0857 CFU/G**	10,000	BELOW THRESHOLD	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 Select Category Type Gummy MIP/Extract Flower matrix



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Mycotoxin Analysis:

LC-MS - Shimadzu LCMS-8060
GSL SOP 401

Uploaded: 10/23/2019 11:40:31

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 4ppb, LOD is 1ppb

Heavy Metals Analysis:

ICP-MS - Shimadzu ICPMS-2030
GSL SOP 403

Uploaded: 10/22/2019 17:16:39

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



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