

CERTIFICATE OF ANALYSIS

Sample Name: **CBG Flower**
 Steep Hill ID: BK74400
 Batch ID: O100419Z
 Sample Type: Flower
 Date Received: 10/4/2019
 Date Reported: 10/10/2019

Customer: **Whats Up Wholesale**

Cannabinoid Results – Standard Potency NT

Standard potency analysis utilizing High Performance Liquid Chromatography with Photo Diode Array Detector (HPLC-PDA; SOP-068)

Analyte	%	mg/g	% (Dry)	mg/g (Dry)	LOD mg/g	LOQ mg/g
CBD	NT	NT	NT	NT	NT	NT
CBDA	NT	NT	NT	NT	NT	NT
CBG	NT	NT	NT	NT	NT	NT
CBN	NT	NT	NT	NT	NT	NT
THC	NT	NT	NT	NT	NT	NT
THCA	NT	NT	NT	NT	NT	NT
Total	NT	NT	NT	NT	NT	NT

Cannabinoid Results – Extended Cannabinoids 10/10/2019

Standard potency analysis utilizing High Performance Liquid Chromatography with Photo Diode Array Detector (HPLC-PDA; SOP-068)

Analyte	%	mg/g	% (Dry)	mg/g (Dry)	LOD mg/g	LOQ mg/g
CBC	0.099	0.99			0.034	0.44
CBCA	0.55	5.5			0.0133	0.44
CBD	0.032	0.32			0.153	0.88
CBDA	ND	ND			0.050	0.44
CBDV	ND	ND			0.149	0.88
CBDVA	ND	ND			0.061	0.44
CBG	0.63	6.3			0.065	0.44
CBGA	15.7	157			0.051	0.44
CBLA	ND	ND			0.053	0.44
CBN	ND	ND			0.0168	0.44
CBNA	ND	ND			0.0150	0.44
THC	ND	ND			0.068	0.44
Δ8-THC	ND	ND			0.135	0.88
THCA	0.121	1.21			0.070	0.44
THCV	ND	ND			0.096	0.88
THCVA	ND	ND			0.081	0.44
Total	17.1	171				

Total THC	Total CBD
0.106 %	0.032 %
1.06 mg/g	0.32 mg/g
	ND
	ND

LOD: Limit of Detection
 LOQ: Limit of Quantitation
 NT: Not Tested
 ND: Not Detected

Moisture Results NT

Moisture content analysis utilizing Moisture Balance (MB; SOP-055)

Analyte	%
Moisture	NT

Water Activity Results NT

Water Activity analysis utilizing Water Activity Meter (WAM; SOP-090) - **Limit units: Aw**

Analyte	Aw	Limit
Water Activity	NT	NT

Foreign Material Results NT

Foreign material analysis utilizing visual inspection (SOP-057)

Analyte	Pass/Fail
Visual Inspection	NT



Travis Ruthenberg
 Chief Science Officer
 Date: 10/10/2019

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Residual Pesticides Results

10/8/2019

 Residual pesticide analysis utilizing Liquid and Gas Chromatography – Mass Spectrometry (LC-MSMS + GC-MSMS; SOP-070 + SOP-080) - **Limit units: µg/g**

Analyte	µg/g	Limit	LOD µg/g	LOQ µg/g	Analyte	µg/g	Limit	LOD µg/g	LOQ µg/g
Abamectin	ND	0.1	0.023	0.078	Fludioxonil	ND	0.1	0.0117	0.039
Acephate	ND	0.1	0.0044	0.0147	Hexythiazox	ND	0.1	0.0046	0.0154
Acequinocyl	ND	0.1	0.024	0.079	Imazalil	ND	ND	0.0045	0.0149
Acetamiprid	ND	0.1	0.0045	0.0151	Imidacloprid	ND	5	0.0046	0.0154
Aldicarb	ND	ND	0.0045	0.0151	Kresoxim-methyl	ND	0.1	0.0046	0.0153
Azoxystrobin	ND	0.1	0.0045	0.0149	Malathion	ND	0.5	0.0046	0.0154
Bifenazate	ND	0.1	0.0045	0.0149	Metalaxyl	ND	2	0.0046	0.0153
Bifenthrin	ND	3	0.0045	0.0149	Methiocarb	ND	ND	0.0118	0.039
Boscalid	ND	0.1	0.0046	0.0153	Methomyl	ND	1	0.0046	0.0153
Captan	ND	0.7	0.095	0.32	Methyl Parathion	ND	ND	0.0046	0.0153
Carbaryl	ND	0.5	0.0045	0.0151	Mevinphos	ND	ND	0.0141	0.047
Carbofuran	ND	ND	0.0045	0.0149	Myclobutanil	ND	0.1	0.0046	0.0154
Chlorantraniliprole	ND	10	0.0045	0.0149	Naled	ND	0.1	0.0046	0.0154
Chlordane	ND	ND	0.0027	0.0090	Oxamyl	ND	0.5	0.0046	0.0154
Chlorfenapyr	ND	ND	0.0118	0.039	Paclobutrazol	ND	ND	0.0045	0.0149
Chlorpyrifos	ND	ND	0.0045	0.0151	Pentachloronitrobenzene	ND	0.1	0.0047	0.0156
Clofentezine	ND	0.1	0.0119	0.039	Permethrin	ND	0.5	0.0131	0.044
Coumaphos	ND	ND	0.0045	0.0149	Phosmet	ND	0.1	0.0045	0.0151
Cyfluthrin	ND	2	0.096	0.32	Piperonyl Butoxide	ND	3	0.0046	0.0154
Cypermethrin	ND	1	0.095	0.32	Prallethrin	ND	0.1	0.024	0.081
Daminozide	ND	ND	0.0117	0.039	Propiconazole	ND	0.1	0.0121	0.040
Diazinon	ND	0.1	0.0045	0.0151	Propoxur	ND	ND	0.0045	0.0149
Dichlorvos	ND	ND	0.0045	0.0151	Pyrethrins	ND	0.5	0.0133	0.044
Dimethoate	ND	ND	0.0045	0.0149	Pyridaben	ND	0.1	0.0046	0.0153
Dimethomorph	ND	2	0.0031	0.0102	Spinetoram	ND	0.1	0.0034	0.0115
Ethoprophos	ND	ND	0.0045	0.0151	Spinosad	ND	0.1	0.0045	0.0151
Etofenprox	ND	ND	0.0045	0.0149	Spiromesifen	ND	0.1	0.024	0.081
Etoxazole	ND	0.1	0.0045	0.0151	Spirotetramat	ND	0.1	0.0046	0.0154
Fenhexamid	ND	0.1	0.0045	0.0149	Spiroxamine	ND	ND	0.0045	0.0149
Fenoxycarb	ND	ND	0.0045	0.0151	Tebuconazole	ND	0.1	0.0046	0.0153
Fenpyroximate	ND	0.1	0.0045	0.0149	Thiacloprid	ND	ND	0.0045	0.0149
Fipronil	ND	ND	0.0118	0.039	Thiamethoxam	ND	5	0.0046	0.0153
Flonicamid	ND	0.1	0.0045	0.0151	Trifloxystrobin	ND	0.1	0.0046	0.0153

Residual Solvents Results

NT

 Residual solvents and processing chemicals analysis utilizing Headspace Gas Chromatography – Mass Spectrometry (HS-GC-MS; SOP-010) - **Limit units: µg/g**

Analyte	µg/g	Limit	LOD µg/g	LOQ µg/g	Analyte	µg/g	Limit	LOD µg/g	LOQ µg/g
1,2 Dichloroethane	NT	NT	NT	NT	n-Heptane	NT	NT	NT	NT
Acetone	NT	NT	NT	NT	n-Hexane	NT	NT	NT	NT
Acetonitrile	NT	NT	NT	NT	Isopropanol	NT	NT	NT	NT
Benzene	NT	NT	NT	NT	Methanol	NT	NT	NT	NT
n-Butane	NT	NT	NT	NT	Methylene Chloride	NT	NT	NT	NT
Chloroform	NT	NT	NT	NT	n-Pentane	NT	NT	NT	NT
Ethanol	NT	NT	NT	NT	Propane	NT	NT	NT	NT
Ethyl Acetate	NT	NT	NT	NT	Toluene	NT	NT	NT	NT
Ethyl Ether	NT	NT	NT	NT	Total Xylenes	NT	NT	NT	NT
Ethylene Oxide	NT	NT	NT	NT	Trichloroethylene	NT	NT	NT	NT



 Travis Ruthenberg
 Chief Science Officer
 Date: 10/10/2019

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Microbial Impurities Results 10/10/2019

Microbiological screening utilizing Pathogen Dx. (PDX; SOP-076)

Analyte	Result	Limit	LOQ
Aspergillus flavus	ND	ND	Not Detected in 1 gram
Aspergillus fumigatus	ND	ND	Not Detected in 1 gram
Aspergillus niger	ND	ND	Not Detected in 1 gram
Aspergillus terreus	ND	ND	Not Detected in 1 gram
E. coli (STEC)	ND	ND	Not Detected in 1 gram
Salmonella	ND	ND	Not Detected in 1 gram

Mycotoxin Results 10/8/2019

 Mycotoxin analysis utilizing Liquid Chromatography – Mass Spectrometry (LC-MSMS; SOP-070) - **Limit units: µg/kg**

Analyte	µg/kg	Limit	LOD µg/kg	LOQ µg/kg
Aflatoxin B1	ND		1.19	3.9
Aflatoxin B2	ND		1.19	3.9
Aflatoxin G1	ND		1.19	3.9
Aflatoxin G2	ND		1.19	3.9
Ochratoxin A	ND	20	2.4	8.1
Total Aflatoxins	ND	20	1.19	3.9

Heavy Metals Results 10/6/2019

 Heavy metals analysis utilizing Inductively Coupled Plasma Mass Spectrometry (ICP-MS; SOP-072) - **Limit units: µg/g**

Analyte	µg/g	Limit	LOD µg/g	LOQ µg/g
Arsenic	ND	0.2	0.0078	0.022
Cadmium	0.152	0.2	0.0078	0.024
Lead	0.027	0.5	0.0039	0.0126
Mercury	ND	0.1	0.0058	0.0175

Terpenoid Results - Standard Terpenes NT

Standard terpene analysis utilizing Gas Chromatography – Mass Spectrometry (GC-MS; SOP-069)

Analyte	%	mg/g	LOD mg/g	LOQ mg/g
Caryophyllene Oxide	NT	NT	NT	NT
β-Caryophyllene	NT	NT	NT	NT
Citronellol	NT	NT	NT	NT
α-Humulene	NT	NT	NT	NT
Limonene	NT	NT	NT	NT
Linalool	NT	NT	NT	NT
β-Myrcene	NT	NT	NT	NT
Phytol 1	NT	NT	NT	NT
Phytol 2	NT	NT	NT	NT
α-Pinene	NT	NT	NT	NT
β-Pinene	NT	NT	NT	NT
Terpinolene	NT	NT	NT	NT
Total	NT	NT	NT	NT

Terpenoid Results - Extended Terpenes
10/7/2019

Extended terpene analysis utilizing Gas Chromatography – Mass Spectrometry (GC-MS; SOP-069)

Analyte	%	mg/g	LOD mg/g	LOQ mg/g	Analyte	%	mg/g	LOD mg/g	LOQ mg/g
α-Bisabolol	0.188	1.88	0.0021	0.071	Linalool	0.0098	0.098	0.00086	0.071
endo-Borneol	< LOQ	< LOQ	0.000161	0.080	Menthol	ND	ND	0.00141	0.071
Camphene	ND	ND	0.00028	0.071	β-Myrcene	0.109	1.09	0.00090	0.071
Camphor	ND	ND	0.00060	0.150	Nerol	ND	ND	0.0058	0.071
3-Carene	ND	ND	0.00028	0.071	cis-Nerolidol	ND	ND	0.0039	0.071
Caryophyllene Oxide	< LOQ	< LOQ	0.00064	0.071	trans-Nerolidol	0.0181	0.181	0.0055	0.071
β-Caryophyllene	0.32	3.2	0.0023	0.071	cis-β-Ocimene	ND	ND	0.00126	0.053
α-Cedrene	ND	ND	0.00100	0.080	trans-β-Ocimene	ND	ND	0.00143	0.027
Cedrol	ND	ND	0.0038	0.071	α-Phellandrene	ND	ND	0.00083	0.071
Citronellol	ND	ND	0.0075	0.071	Phytol 1	ND	ND	0.00152	0.027
Eucalyptol	ND	ND	0.00141	0.071	Phytol 2	0.0068	0.068	0.00175	0.044
α-Farnesene	ND	ND	0.0101	0.024	α-Pinene	0.046	0.46	0.00023	0.080
β-Farnesene	0.0174	0.174	0.0036	0.088	β-Pinene	0.0085	0.085	0.000175	0.071
Fenchol	< LOQ	< LOQ	0.00056	0.080	Pulegone	ND	ND	0.0020	0.071
Fenchone	ND	ND	0.00035	0.071	Sabinene	ND	ND	0.000168	0.071
Geraniol	ND	ND	0.0110	0.071	Sabinene Hydrate	ND	ND	0.00156	0.071
Geranyl Acetate	ND	ND	0.0031	0.115	α-Terpinene	ND	ND	0.00036	0.080
Guaiol	0.112	1.12	0.00182	0.080	γ-Terpinene	ND	ND	0.00039	0.071
α-Humulene	0.068	0.68	0.00036	0.071	α-Terpineol	0.0099	0.099	0.00158	0.071
Isoborneol	ND	ND	0.00036	0.071	Terpinolene	< LOQ	< LOQ	0.00062	0.080
Isopulegol	ND	ND	0.0032	0.071	Valencene	ND	ND	0.0030	0.071
Limonene	0.020	0.20	0.00040	0.071	Total	0.93	9.3		



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