

Certificate of Analysis Cover Page

Twin Arbor Analytical

3990 Ruth Way Suite D
Paso Robles, CA 93446
(805) 369-2123



PREPARED FOR:

Arise Bioscience / Funky Farms
6401 Congress Avenue, Ste 270
Boca Raton, FL 33487

Report Date
Sample ID
Batch / Lot

3/4/2022
CBD Granddaddy Purple
#02182204

Results

Analysis

Cannabinoids

CBD (%) **47.6 %**
Total THC **PASS**

Pesticides and Mycotoxins

Result **PASS**

Residual Solvents

Result **PASS**

Heavy Metals

Result **PASS**

Microbial

Result **PASS**

Terpenes

Page 8

Forrest Richmond
Laboratory Manager

NT = Not Tested

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PREPARED FOR:

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6401 Congress Avenue, Ste 270
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Report Date

3/30/2022

Sample ID

CBD Granddaddy Purple

Batch / Lot

#02182204

Internal Sample ID

220225-155-3

Lab Batch ID

220225-3

Date of Analysis

3/1/2022

Analysis: Cannabinoids

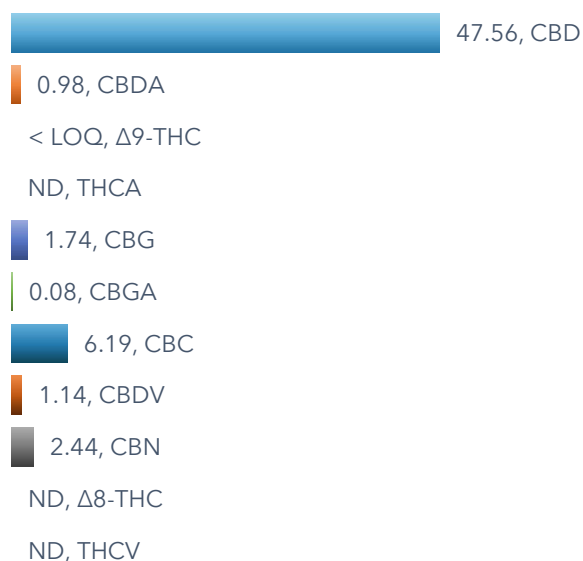
Instrumentation: HPLC/DAD

Instrument ID: HPLC 1

Method: TM0002 (Twin Arbor Analytical Proprietary)

	LOD / LOQ (mg/g)	mg/g	% by weight
CBD	0.23 / 0.69	475.6	47.56
CBDA	0.21 / 0.64	9.8	0.98
Total CBD *		484.2	48.42
Δ 9-THC	0.21 / 0.64	< LOQ	< LOQ
THCA	0.21 / 0.64	ND	ND
Total THC *		N/A	N/A
CBG	0.21 / 0.64	17.4	1.74
CBGA	0.21 / 0.64	0.8	0.08
Total CBG *		18.1	1.81
CBC	0.21 / 0.64	61.9	6.19
CBDV	0.21 / 0.64	11.4	1.14
CBN	0.21 / 0.64	24.4	2.44
Δ 8-THC	0.21 / 0.64	ND	ND
THCV	0.21 / 0.64	ND	ND
Total Tested Cannabinoids		601.3	60.13

% by weight



Moisture Content: **NT**

NOTE: This revision supercedes all previous versions

Coeluted compound identified and removed from Δ 9-THC peak- 3/30/22 - FR

ND = Not Detected

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* Totals account for decarboxylation of the acid and equal $XXX + (XXXX * 0.877)$

For example: Total THC = Δ 9-THC + (THCA * 0.877)

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220301-4

Date of Analysis

3/1/2022

Analysis: Pesticides and Mycotoxins

Instrumentation: LC-Mass Spectrometer

Intrument ID: LCMS 1

Method: TM0004 (Twin Arbor Analytical Proprietary)

Mycotoxins	Pass / Fail	Results (µg/g)	Action Limit (µg/g)	LOD / LOQ (µg/g)
Aflatoxin B1	Pass	ND	0.02	0.000 / 0.001
Aflatoxin B2	Pass	ND	0.02	0.001 / 0.004
Aflatoxin G1	Pass	ND	0.02	0.000 / 0.001
Aflatoxin G2	Pass	ND	0.02	0.001 / 0.004
Ochratoxin A	Pass	ND	0.02	0.004 / 0.013

Category I	Pass / Fail	Results (µg/g)	Action Limit (µg/g)	LOD / LOQ (µg/g)
Aldicarb	Pass	ND	ND	0.033 / 0.100
Carbofuran	Pass	ND	ND	0.033 / 0.100
Chlordane	Pass	ND	ND	0.100 / 0.300
Chlorfenapyr	Pass	ND	ND	0.033 / 0.100
Chlorpyrifos	Pass	ND	ND	0.033 / 0.100
Coumaphos	Pass	ND	ND	0.033 / 0.100
Daminozide	Pass	ND	ND	0.033 / 0.100
DDVP (Dichlorvos)	Pass	ND	ND	0.033 / 0.100
Dimethoate	Pass	ND	ND	0.033 / 0.100
Ethoprop(hos)	Pass	ND	ND	0.033 / 0.100
Etofenprox	Pass	ND	ND	0.033 / 0.100
Fenoxycarb	Pass	ND	ND	0.033 / 0.100
Fipronil	Pass	ND	ND	0.033 / 0.100
Imazalil	Pass	ND	ND	0.033 / 0.100
Methiocarb	Pass	ND	ND	0.033 / 0.100
Methyl parathion	Pass	ND	ND	0.033 / 0.100
Mevinphos	Pass	ND	ND	0.017 / 0.050
Paclobutrazol	Pass	ND	ND	0.033 / 0.100
Propoxur	Pass	ND	ND	0.033 / 0.100
Spiroxamine	Pass	ND	ND	0.033 / 0.100
Thiacloprid	Pass	ND	ND	0.033 / 0.100

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Analysis: Pesticides and Mycotoxins (continued)

Instrumentation: LC-Mass Spectrometer

Instrument ID: LCMS 1

Method: TM0004 (Twin Arbor Analytical Proprietary)

Category II	Pass / Fail	Results (µg/g)	Action Limit (µg/g)	LOD / LOQ (µg/g)
Abamectin	Pass	ND	0.10	0.017 / 0.050
Acephate	Pass	ND	0.10	0.017 / 0.050
Acequinocyl	Pass	ND	0.10	0.017 / 0.050
Acetamiprid	Pass	ND	0.10	0.017 / 0.050
Azoxystrobin	Pass	ND	0.10	0.017 / 0.050
Bifenazate	Pass	ND	0.10	0.017 / 0.050
Bifenthrin	Pass	ND	3.00	0.017 / 0.050
Boscalid	Pass	0.079	0.10	0.017 / 0.050
Captan	Pass	ND	0.70	0.033 / 0.100
Carbaryl	Pass	ND	0.50	0.017 / 0.050
Chlorantraniliprole	Pass	ND	10.00	0.017 / 0.050
Clofentezine	Pass	ND	0.10	0.017 / 0.050
Cyfluthrin	Pass	ND	2.00	0.033 / 0.100
Cypermethrin	Pass	ND	1.00	0.017 / 0.050
Diazinon	Pass	ND	0.10	0.017 / 0.050
Dimethomorph	Pass	ND	2.00	0.017 / 0.050
Etoxazole	Pass	ND	0.10	0.017 / 0.050
Fenhexamid	Pass	ND	0.10	0.017 / 0.050
Fenpyroximate	Pass	ND	0.10	0.017 / 0.050
Fonicamid	Pass	ND	0.10	0.017 / 0.050
Fludioxonil	Pass	ND	0.10	0.017 / 0.050
Hexythiazox	Pass	ND	0.10	0.017 / 0.050
Imidacloprid	Pass	ND	5.00	0.017 / 0.050
Kresoxim-methyl	Pass	ND	0.10	0.017 / 0.050
Malathion	Pass	ND	0.50	0.017 / 0.050
Metalaxyl	Pass	ND	2.00	0.017 / 0.050
Methomyl	Pass	ND	1.00	0.017 / 0.050
Myclobutanil	Pass	ND	0.10	0.017 / 0.050
Naled	Pass	ND	0.10	0.017 / 0.050
Oxamyl	Pass	ND	0.50	0.017 / 0.050
Pentachloronitrobenzene	Pass	ND	0.10	0.017 / 0.050
Permethrin	Pass	ND	0.50	0.017 / 0.050
Phosmet	Pass	ND	0.10	0.017 / 0.050
Piperonylbutoxide	Pass	ND	3.00	0.017 / 0.050
Prallethrin	Pass	ND	0.10	0.017 / 0.050
Propiconazole	Pass	ND	0.10	0.017 / 0.050
Pyrethrins	Pass	ND	0.50	0.017 / 0.050
Pyridaben	Pass	ND	0.10	0.017 / 0.050
Spinetoram	Pass	ND	0.10	0.017 / 0.050
Spinosad	Pass	ND	0.10	0.017 / 0.050
Spiromesifen	Pass	ND	0.10	0.017 / 0.050
Spirotetramat	Pass	ND	0.10	0.017 / 0.050
Tebuconazole	Pass	ND	0.10	0.017 / 0.050
Thiamethoxam	Pass	ND	5.00	0.017 / 0.050
Trifloxystrobin	Pass	ND	0.10	0.017 / 0.050

LOD = Limit of Detection

LOQ = Limit of Quantification

ND = Not Detected

NT = Not Tested



Forrest Richmond
Laboratory Manager

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3/4/2022

Sample ID

CBD Granddaddy Purple

Batch / Lot

#02182204

Internal Sample ID

220225-155-3

Lab Batch ID

220301-3

Date of Analysis

3/2/2022

Analysis: Residual Solvents

Instrumentation: GC-MS

Intrument ID: GCMS1

Method: TM0006 (Twin Arbor Analytical Proprietary)

	Pass / Fail	Results (µg/g)	Action Limit (µg/g)	LOQ (µg/g)
1,2-Dichloroethane	PASS	< LOQ	1.0	0.41
Benzene	PASS	< LOQ	1.0	0.42
Chloroform	PASS	< LOQ	1.0	0.41
Ethylene oxide	PASS	< LOQ	1.0	0.42
Methylene chloride	PASS	< LOQ	1.0	0.4
Trichloroethylene	PASS	< LOQ	1.0	0.43
Acetone	PASS	< LOQ	5000	59.2
Acetonitrile	PASS	< LOQ	410	60.92
Butane	PASS	< LOQ	5000	64
Ethanol	PASS	< LOQ	5000	59.54
Ethyl acetate	PASS	< LOQ	5000	59.96
Ethyl ether	PASS	< LOQ	5000	59.1
Heptane	PASS	60.150	5000	59.24
Hexane	PASS	< LOQ	290	59.28
Isopropyl alcohol	PASS	< LOQ	5000	59.3
Methanol	PASS	< LOQ	3000	59.3
Pentane	PASS	< LOQ	5000	59.56
Propane	PASS	< LOQ	5000	40
Toluene	PASS	< LOQ	890	59.3
Total xylenes (ortho-, meta-, para-)	PASS	< LOQ	2170	179.06



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3/4/2022

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CBD Granddaddy Purple

Batch / Lot

#02182204

Internal Sample ID

220225-155-3

Lab Batch ID

220301-5

Date of Analysis

3/2/2022

Analysis: Heavy Metals

Instrumentation: ICP-MS

Intrument ID: ICPMS1

Method: TM0005 (Twin Arbor Analytical Proprietary)

	Pass / Fail	Results ($\mu\text{g/g}$)	Action Limit ($\mu\text{g/g}$)	LOQ ($\mu\text{g/g}$)
Arsenic	PASS	< LOQ	0.2	0.013
Cadmium	PASS	< LOQ	0.2	0.013
Lead	PASS	< LOQ	0.5	0.031
Mercury	PASS	< LOQ	0.1	0.013



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LOQ = Limit of Quantification

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Batch / Lot

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Internal Sample ID

220225-155-3

Lab Batch ID

220225-155

Date of Analysis

3/3/2022

Analysis: Microbial Impurities

Instrumentation: RT-PCR Instrument ID: BAX1 Method: AOAC-RI 091301 (modified)

	Action Limit	Pass / Fail
STEC (Shiga-toxicogenic E. coli)	ND	PASS
Salmonella sp.	ND	PASS
Pathogenic Aspergillus	ND	PASS



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3/4/2022

Sample ID

CBD Granddaddy Purple

Batch / Lot

#02182204

Internal Sample ID

220225-155-1

Lab Batch ID

220303-2

Date of Analysis

3/3/2022

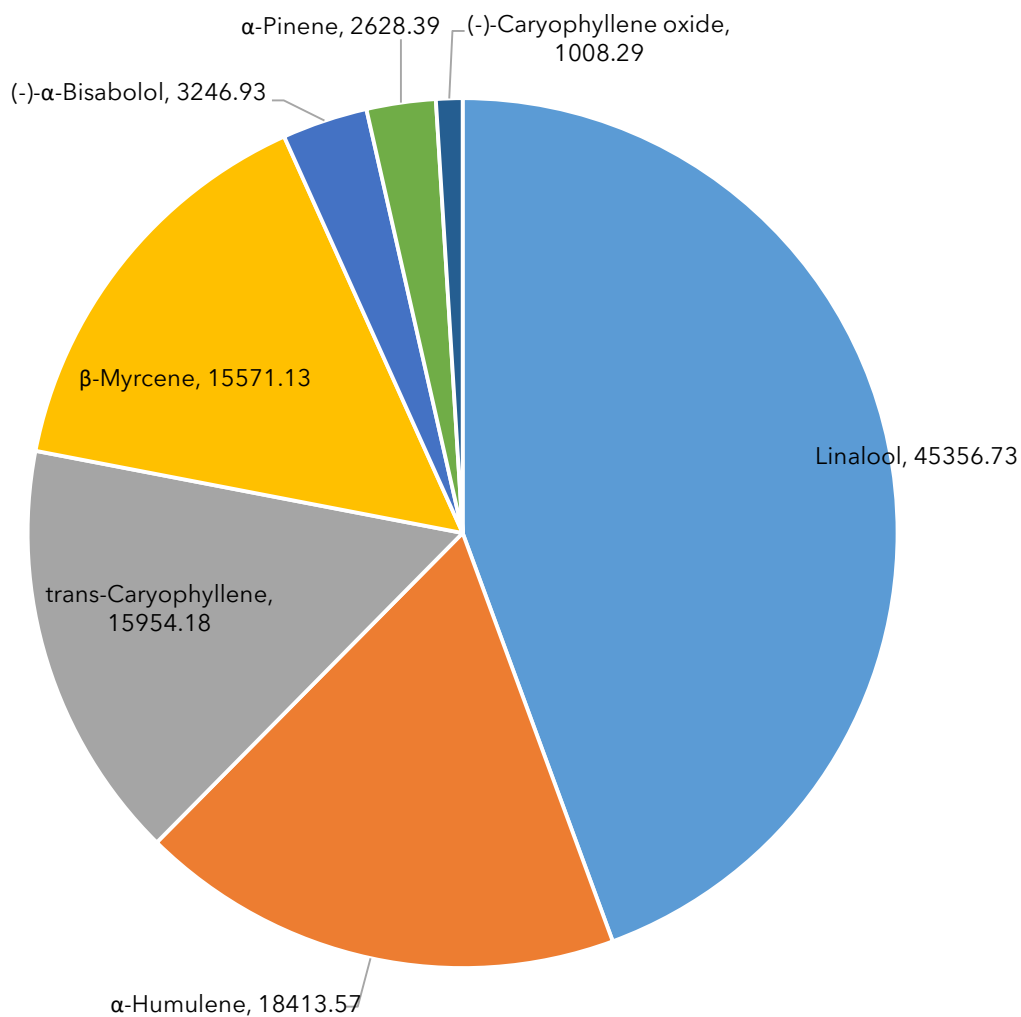
Analysis: Terpenes

Instrumentation: GC-MS

Intrument ID: GCMS1

Method: TM0006 (Twin Arbor Analytical Proprietary)

Top Terpenes Detected



Continued on page 9

Analysis: Terpenes (continued)

	LOQ (µg/g)	Results (µg/g)
α-Pinene	0.34	2628.39
Camphene	0.33	42.81
Sabinene	0.99	< LOQ
β-Myrcene	1.00	15571.13
beta-Pinene	0.33	273.26
α-Phellandrene	1.00	560.60
(1S)-(+)-3-Cerene	0.99	74.15
α-Terpinene	0.33	32.67
D-Limonene	0.99	311.04
Ocimene	0.79	7.33
Eucalyptol	1.00	< LOQ
γ-Terpinene	0.33	14.06
Terpinolene	0.99	178.64
Sabinene Hydrate	1.00	< LOQ
Linalool	1.00	45356.73
Fenchone	0.22	22.67
(1R)-endo-(+)-Fenchyl alcohol	0.33	39.61
(-)-Isopulegol	2.99	< LOQ
Camphor	0.33	< LOQ
Isoborneol	2.99	< LOQ
dI-Menthol	1.00	< LOQ
Borneol	0.22	< LOQ
α-Terpineol	0.81	< LOQ
γ-Terpineol	0.55	< LOQ
Nerol	2.99	< LOQ
Geraniol	8.94	< LOQ
(+)-Pulegone	0.99	< LOQ
Geranyl acetate	2.98	< LOQ
α-Cedrene	0.33	< LOQ
trans-Caryophyllene	3.00	15954.18
α-Humulene	0.33	18413.57
α-Farnesene	26.94	< LOQ
Valencene	3.00	< LOQ
cis-Nerolidol	2.99	< LOQ
trans-Nerolidol	3.00	151.18
Guaiol	0.99	700.68
(-)-Caryophyllene oxide	8.98	1008.29
(+)-Cedrol	1.00	< LOQ
(-)-α-Bisabolol	2.99	3246.93



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