

CERTIFICATE OF ANALYSIS



JuniperAnalytics
INTEGRITY AND ACCURACY IN EVERY STEP

Juniper Analytics, LLC
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ORELAP: 4101 / OLCC: 010-10035537931

Client Name:	GVB Biopharma
Contact Info:	Phil
Sample Type:	Extract
External Batch ID:	5173
Harvest/Prod. Date:	3/12/20
Sample ID:	CRD
METRC ID:	Industrial Hemp
Juniper Batch #:	20JA0509.03_A-B Composite
Intake Date:	3/13/20

Batch sampled per
OAR 333-064-0100



Potency Analysis (Oregon Compliance Standard OAR 333-007-0430)

ANALYSIS DATE: 3/13/20

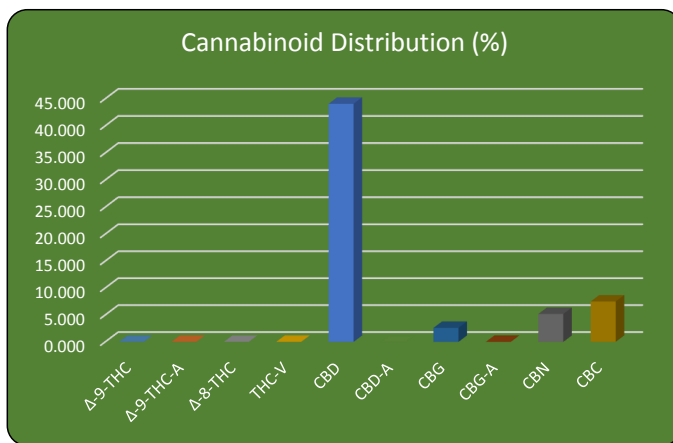
Instrument: HPLC/DAD

Method: JA-Potency-Proprietary

Compound	Weight (%)	Concentration (mg/g)	LOQ (mg/g)
Δ-9-THC	<LOQ	<LOQ	1.00
Δ-9-THC-A	<LOQ	<LOQ	1.00
Δ-8-THC	<LOQ	<LOQ	1.00
THC-V	<LOQ	<LOQ	1.00
CBD	44.068	440.68	1.00
CBD-A	<LOQ	<LOQ	1.00
CBG	2.600	26.00	1.00
CBG-A	<LOQ	<LOQ	1.00
CBN	5.176	51.76	1.00
CBC	7.491	74.91	1.00

Values before adding 5% terpenes

TOTAL THC/CBD	Weight (%)	Conc (mg/g)	RPD
% THC Total =	<LOQ	<LOQ	0.00%
%THC _{Total} = (THC-A * 0.877) + Δ9THC			
% CBD Total =	44.068	440.68	PASS
%CBD _{Total} = (CBD-A * 0.877) + CBD			



Residual Solvent Analysis (Oregon Compliance Standard OAR 333-007-0410)

ANALYSIS DATE: 3/16/20

Instrument: GC/MS

Method: USP 467 - Modified

Solvent	Result (ppm)	Action Level / LOQ (ppm)
1,4-Dioxane	<LOQ	380 / 100
2-Butanol	<LOQ	5000 / 500
2-Ethoxyethanol	<LOQ	160 / 100
2-Propanol (IPA)	<LOQ	5000 / 500
Acetone	<LOQ	5000 / 500
Acetonitrile	<LOQ	410 / 100
Benzene	<LOQ	2 / 1
Cumene	<LOQ	70 / 50
Cyclohexane	<LOQ	3880 / 500
Dichloromethane	<LOQ	600 / 100
Ethyl acetate	<LOQ	5000 / 500
Ethyl ether	<LOQ	5000 / 500
Ethylene glycol	<LOQ	620 / 300
Ethylene oxide	<LOQ	50 / 10
Heptane	<LOQ	5000 / 500
Isopropyl acetate	<LOQ	5000 / 500
Methanol	<LOQ	3000 / 500
Propane	<LOQ	5000 / 500
Tetrahydrofuran	<LOQ	720 / 100
Toluene	<LOQ	890 / 100

Solvent	Result (ppm)	Action Level / LOQ (ppm)
Pentanes;	<LOQ	5000 / 500
-n-pentane	<LOQ	**
-iso-pentane	<LOQ	**
-neo-pentane	<LOQ	**
Butanes;	<LOQ	5000 / 500
-n-butane	<LOQ	**
-iso-butane	<LOQ	**
Hexanes;	<LOQ	290 / 50
-n-hexane	<LOQ	**
-2-methylpentane	<LOQ	**
-3-methylpentane	<LOQ	**
-2,2-dimethylbutane	<LOQ	**
-2,3-dimethylbutane	<LOQ	**
Xylenes;	<LOQ	2170 / 300
-1,2-dimethylbenzene	<LOQ	**
-1,3-dimethylbenzene	<LOQ	**
-1,4-dimethylbenzene	<LOQ	**
-Ethyl benzene	<LOQ	**

**RPD calculated for combined results

Residual Solvents **PASS**

Tentatively Identified Compounds: None Detected

<LOQ - Less than the Limit of Quantification

***Largest hit reported to appropriate governing body; RPD only calculated on samples where the average result is above 50% of the action level.

Approval

Ben Swartz

Report Date: 3/18/20

QA Review



Juniper Batch #: 20JA0509.03_A-B Composite
 Intake Date: 3/13/20

Pesticide Analysis (Oregon Compliance Standard OAR 333-008-1190)

ANALYSIS DATE: 3/16/20			Instrument: LC/MS/MS		Method: AOAC 2007.1 ^{modified}	
Pesticide	Result (ppm)	Action Level / LOQ (ppm)	Pesticide	Result (ppm)	Action Level / LOQ (ppm)	
Abamectin	<LOQ	0.5 / 0.25	Imazalil	<LOQ	0.2 / 0.10	
Acephate	<LOQ	0.4 / 0.20	Imidacloprid	<LOQ	0.4 / 0.20	
Acequinocyl	<LOQ	2.0 / 1.00	Kresoxim-methyl	<LOQ	0.4 / 0.20	
Acetamiprid	<LOQ	0.2 / 0.10	Malathion	<LOQ	0.2 / 0.10	
Aldicarb	<LOQ	0.4 / 0.20	Metalaxyl	<LOQ	0.2 / 0.10	
Azoxystrobin	<LOQ	0.2 / 0.10	Methiocarb	<LOQ	0.2 / 0.10	
Bifenazate	<LOQ	0.2 / 0.10	Methomyl	<LOQ	0.4 / 0.20	
Bifenthrin	<LOQ	0.2 / 0.10	Methyl Parathion	<LOQ	0.2 / 0.10	
Boscalid	<LOQ	0.4 / 0.20	MGK-264	<LOQ	0.2 / 0.10	
Carbaryl	<LOQ	0.2 / 0.10	Myclobutanil	<LOQ	0.2 / 0.10	
Carbofuran	<LOQ	0.2 / 0.10	Naled	<LOQ	0.5 / 0.25	
Chlorantraniliprole	<LOQ	0.2 / 0.10	Oxamyl	<LOQ	1.0 / 0.50	
Chlorfenapyr	<LOQ	1.0 / 0.50	Paclotrazol	<LOQ	0.4 / 0.20	
Chlorpyrifos	<LOQ	0.2 / 0.10	Permethrins	<LOQ	0.2 / 0.10	
Clofentezine	<LOQ	0.2 / 0.10	Phosmet	<LOQ	0.2 / 0.10	
Cyfluthrin	<LOQ	1.0 / 0.50	Piperonyl butoxide	<LOQ	2.0 / 1.00	
Cypermethrin	<LOQ	1.0 / 0.50	Prallethrin	<LOQ	0.2 / 0.10	
Daminozide	<LOQ	1.0 / 0.50	Propiconazole	<LOQ	0.4 / 0.20	
DDVP (Dichlorvos)	<LOQ	1.0 / 0.50	Propoxur	<LOQ	0.2 / 0.10	
Diazinon	<LOQ	0.2 / 0.10	Pyrethrins	<LOQ	1.0 / 0.50	
Dimethoate	<LOQ	0.2 / 0.10	Pyridaben	<LOQ	0.2 / 0.10	
Ethoprophos	<LOQ	0.2 / 0.10	Spinosad	<LOQ	0.2 / 0.10	
Etofenprox	<LOQ	0.4 / 0.20	Spiromesifen	<LOQ	0.2 / 0.10	
Etoxazole	<LOQ	0.2 / 0.10	Spirotetramat	<LOQ	0.2 / 0.10	
Fenoxycarb	<LOQ	0.2 / 0.10	Spiroxamine	<LOQ	0.4 / 0.20	
Fenpyroximate	<LOQ	0.4 / 0.20	Tebuconazole	<LOQ	0.4 / 0.20	
Fipronil	<LOQ	0.4 / 0.20	Thiacloprid	<LOQ	0.2 / 0.10	
Flonicamid	<LOQ	1.0 / 0.50	Thiamethoxam	<LOQ	0.2 / 0.10	
Fludioxonil	<LOQ	0.4 / 0.20	Trifloxystrobin	<LOQ	0.2 / 0.10	
Hexythiazox	<LOQ	1.0 / 0.50				
Pesticide Screen	Pass					

LOQ= Limit of Quantification

Microbiological Contaminants (Oregon Compliance Standard OAR 333-007-0390)

ANALYSIS DATE: Not Tested			
Microbiological screening	Colony count	CFU/g	Results:
Total coliforms	Not tested	Not tested	N/A
<i>Escherichia coli</i> (E. coli)	Not tested	Not tested	N/A

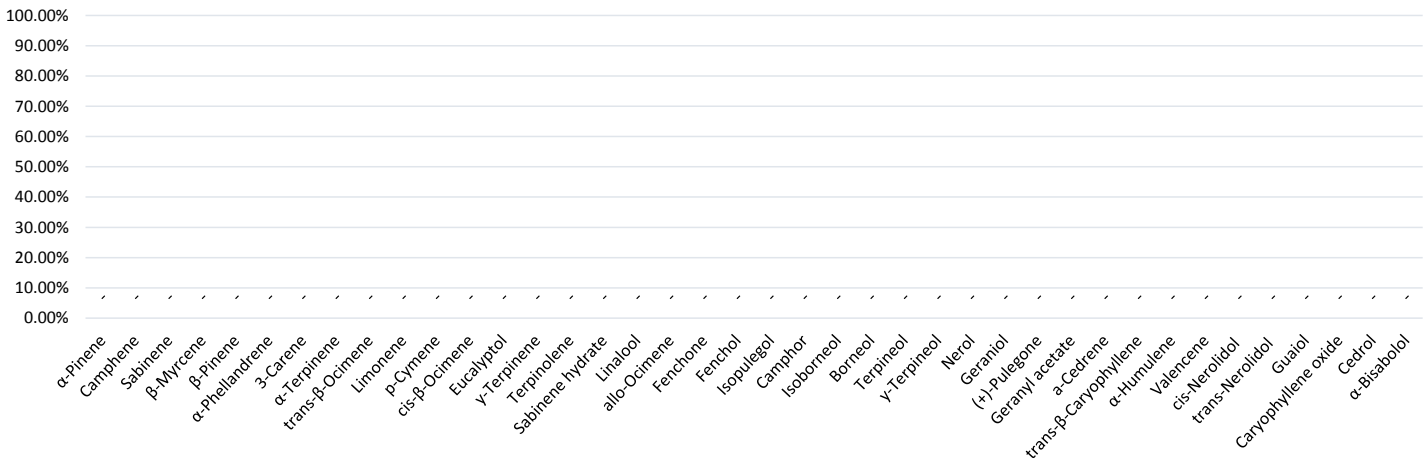


Juniper Batch #:	20JA0509.03_A-B Composite
Intake Date:	3/13/20

Terpene Profile

ANALYSIS DATE: Not Tested			Instrument: GC/MS			Method: JA-Terpene-Proprietary		
Compound	µg/g	%	Compound	µg/g	%	Compound	µg/g	%
α-Pinene			Isopulegol					
Camphene			Camphor					
Sabinene			Isoborneol					
β-Myrcene			Borneol					
β-Pinene			Terpineol					
α-Phellandrene			γ-Terpineol					
3-Carene			Nerol					
α-Terpinene			Geraniol					
trans-β-Ocimene			(+)-Pulegone					
Limonene			Geranyl acetate					
p-Cymene			α-Cedrene					
cis-β-Ocimene			trans-β-Caryophyllene					
Eucalyptol			α-Humulene					
γ-Terpinene			Valencene					
Terpinolene			cis-Nerolidol					
Sabinene hydrate			trans-Nerolidol					
Linalool			Guaiol					
allo-Ocimene			Caryophyllene oxide					
Fenchone			Cedrol					
Fenchol			α-Bisabolol					
			TOTAL					

Terpene Profile*



* Profile expressed as a percent of total terpenes

Batch QC WorkGroup ID:

Potency PO-2020-03-13-01

Pesticides Pest-2020-03-13-01

Residual Solvents RS-2020-03-13-01

Disclaimer

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