# CERTIFICATE OF ANALYSIS

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

| | |
|---|---|
| Client Name: | GVB Biopharma |
| Contact Info: | Mark |
| Sample Type: | Extract |
| External Batch ID: | 8198 |
| Harvest/Prod. Date: | 1/26/20 |
| Sample ID: | CBG Isolate |
| METRC ID: | Industrial Hemp |
| Juniper Batch #: | 20JA0263.01_A-B |
| Intake Date: | 2/04/20 |

Batch sampled per OAR 333-064-0100

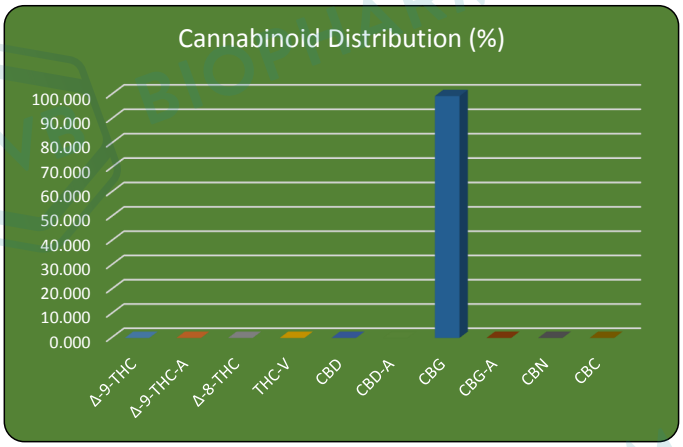
## Potency Analysis (Oregon Compliance Standard OAR 333-007-0430)

**ANALYSIS DATE: 2/04/20**

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 | <LOQ | <LOQ | 1.00 |
| CBD-A | <LOQ | <LOQ | 1.00 |
| CBG | 99.368 | 993.68 | 1.00 |
| CBG-A | <LOQ | <LOQ | 1.00 |
| CBN | <LOQ | <LOQ | 1.00 |
| CBC | <LOQ | <LOQ | 1.00 |

| TOTAL THC/CBD | Weight (%) | Conc (mg/g) | RPD |
|---|---|---|---|
| % THC Total = | <LOQ | <LOQ | 0.00% |
| $\%THC_{Total = (THC\text{-}A * 0.877)+\Delta 9THC}$ | | | PASS |
| % CBD Total = | <LOQ | <LOQ | |
| $\%CBD_{Total = (CBD\text{-}A * 0.877) +CBD}$ | | | |




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

**ANALYSIS DATE: 2/06/20**

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:** Peak 1: Hits 1-3: Hexane, 2-Methyl- Peak 2: Hit 1: Hexane, 3-Methyl-

*<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

QA Review

**Report Date: 2/07/20**

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INTEGRITY AND ACCURACY IN EVERY STEP

| Juniper Batch #: | 20JA0263.01_A-B |
|---|---|
| Intake Date: | 2/04/20 |

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

**ANALYSIS DATE:** 2/05/20 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 | Paclobutrazol | <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** |
| ***Escherichia coli (E. coli)*** | Not tested | Not tested | **N/A** |

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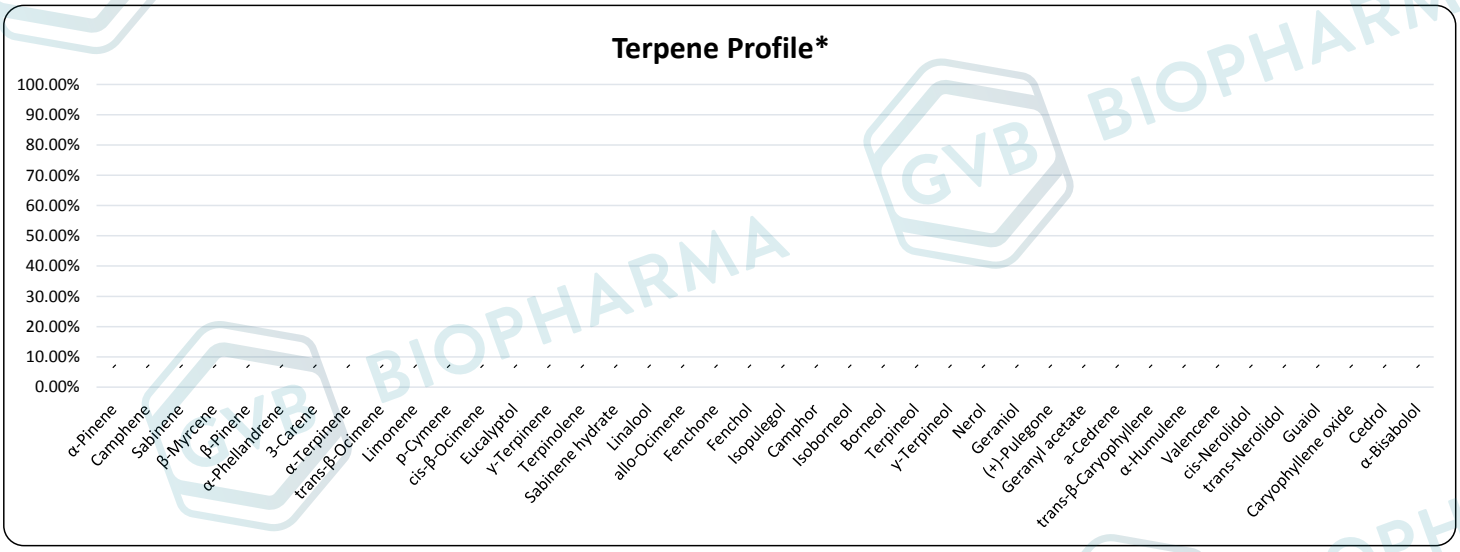
INTEGRITY AND ACCURACY IN EVERY STEP

| Juniper Batch #: | 20JA0263.01_A-B |
|---|---|
| Intake Date: | 2/04/20 |

## Terpene Profile

**ANALYSIS DATE: Not Tested** Instrument: GC/MS Method: JA-Terpene-Proprietary

| Compound | µg/g | % | Compound | µg/g | % |
|---|---|---|---|---|---|
| α-Pinene | | | Isopulegol | | |
| Camphene | | | Camphor | | |
| Sabinene | | | Isoborneol | | |
| β-Myrcene | | | Borneol | | |
| β-Pinene | | | Terpineol | | |
| α-Phellandrene | | | y-Terpineol | | |
| 3-Carene | | | Nerol | | |
| α-Terpinene | | | Geraniol | | |
| trans-β-Ocimene | | | (+)-Pulegone | | |
| Limonene | | | Geranyl acetate | | |
| p-Cymene | | | a-Cedrene | | |
| cis-β-Ocimene | | | trans-β-Caryophyllene | | |
| Eucalyptol | | | α-Humulene | | |
| y-Terpinene | | | Valencene | | |
| Terpinolene | | | cis-Nerolidol | | |
| Sabinene hydrate | | | trans-Nerolidol | | |
| Linalool | | | Guaiol | | |
| allo-Ocimene | | | Caryophyllene oxide | | |
| Fenchone | | | Cedrol | | |
| Fenchol | | | α-Bisabolol | | |
| | | | TOTAL | | |




*** Profile expressed as a percent of total terpenes**

**Batch QC WorkGroup ID:**

**Potency** PO-2020-02-04-01
**Pesticides** Pest-2020-02-04-01
**Residual Solvents** RS-2020-02-04-01

## Disclaimer