Hemp Quality Assurance Testing

# CERTIFICATE OF ANALYSIS

**DATE ISSUED 01/07/2021**

## SAMPLE NAME: Twin Arch Tincture

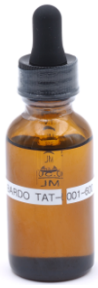
Infused, Non-Inhalable

### CULTIVATOR / MANUFACTURER

**Business Name:**
**License Number:**
**Address:**

### DISTRIBUTOR / TESTED FOR

**Business Name:** Bardo
**License Number:**
**Address:**



### SAMPLE DETAIL

**Batch Number:** TAT-001-600
**Sample ID:** 210105S002

**Date Collected:** 01/05/2021
**Date Received:** 01/05/2021
**Batch Size:**
**Sample Size:** 3.0 units
**Unit Mass:** 30 milliliters per Unit
**Serving Size:** 1 milliliters per Serving

Scan QR code to verify authenticity of results.

## CANNABINOID ANALYSIS - SUMMARY

**Total THC: 13.290 mg/unit**

**Total CBD: 665.490 mg/unit**

**Sum of Cannabinoids: 722.580 mg/unit**

**Total Cannabinoids: 722.580 mg/unit**

Total THC/CBD is calculated using the following formulas to take into account the loss of a carboxyl group during the decarboxylation step:
Total THC = Δ9THC + (THCa (0.877))
Total CBD = CBD + (CBDa (0.877))
Sum of Cannabinoids = Δ9THC + THCa + CBD + CBDa + CBG + CBGa + THCV + THCVa + CBC + CBCa + CBDV + CBDVa + Δ8THC + CBL + CBN
Total Cannabinoids = (Δ9THC+0.877*THCa) + (CBD+0.877*CBDa) + (CBG+0.877*CBGa) + (THCV+0.877*THCVa) + (CBC+0.877*CBCa) + (CBDV+0.877*CBDVa) + Δ8THC + CBL + CBN

Moisture: NT

**Density: 0.9469 g/mL**

Viscosity: NT

## SAFETY ANALYSIS - SUMMARY

**Δ9THC per Unit: PASS**

Foreign Material: **NT**

Water Activity: **NT**

Vitamin E Acetate: **NT**

Pesticides: **NT**

Mycotoxins: **NT**

Residual Solvents: **NT**

Heavy Metals: **NT**

**Microbial Impurities (PCR): PASS**

Microbial Impurities (Plating): **NT**

For quality assurance purposes. Not a Pre-Harvest Hemp Lab Test Report. These results relate only to the sample included on this report. This report shall not be reproduced, except in full, without written approval of the laboratory.

**Sample Certification:** California Code of Regulations Title 16 Effect Date January 16, 2019. Authority: Section 26013, Business and Professions Code. Reference: Sections 26100, 26104 and 26110, Business and Professions Code.

**Decision Rule:** Statements of conformity (e.g. Pass/Fail) to specifications are made in this report without taking measurement uncertainty into account. Where statements of conformity are made in this report, the following decision rules are applied: PASS – Results within limits/specifications, FAIL – Results exceed limits/specifications.

**References:** limit of detection (LOD), limit of quantification (LOQ), not detected (ND), not tested (NT)

LQC Verified by: Marija DeFerrari
Date: 01/07/2021

Approved by: Josh Wurzer, President
Date: 01/07/2021

## Cannabinoid Analysis

Tested by high-performance liquid chromatography with diode-array detection (HPLC-DAD).

**Method:** QSP 1157 - Analysis of Cannabinoids by HPLC-DAD

### TOTAL THC: 13.290 mg/unit
Total THC (Δ9THC+0.877*THCa)

### TOTAL CBD: 665.490 mg/unit
Total CBD (CBD+0.877*CBDa)

### TOTAL CANNABINOIDS: 722.580 mg/unit
Total Cannabinoids (Total THC) + (Total CBD) + (Total CBG) + (Total THCV) + (Total CBC) + (Total CBDV) + Δ8THC + CBL + CBN

### TOTAL CBG: 7.260 mg/unit
Total CBG (CBG+0.877*CBGa)

### TOTAL THCV: ND
Total THCV (THCV+0.877*THCVa)

### TOTAL CBC: 27.480 mg/unit
Total CBC (CBC+0.877*CBCa)

### TOTAL CBDV: 3.690 mg/unit
Total CBDV (CBDV+0.877*CBDVa)

**CANNABINOID TEST RESULTS -** 01/06/2021

| COMPOUND | LOD/LOQ (mg/mL) | MEASUREMENT UNCERTAINTY (mg/mL) | RESULT (mg/mL) | RESULT (%) |
|---|---|---|---|---|
| CBD | *0.004 / 0.011* | *±1.0626* | 22.183 | 2.3427 |
| CBC | *0.003 / 0.010* | *±0.0379* | 0.916 | 0.0967 |
| Δ9THC | *0.002 / 0.014* | *±0.0312* | 0.443 | 0.0468 |
| CBG | *0.002 / 0.006* | *±0.0151* | 0.242 | 0.0256 |
| CBN | *0.001 / 0.007* | *±0.0049* | 0.133 | 0.0140 |
| CBDV | *0.002 / 0.012* | *±0.0064* | 0.123 | 0.0130 |
| CBL | *0.003 / 0.010* | *±0.0022* | 0.046 | 0.0049 |
| Δ8THC | *0.01 / 0.02* | *N/A* | ND | ND |
| THCa | *0.001 / 0.005* | *N/A* | ND | ND |
| THCV | *0.002 / 0.012* | *N/A* | ND | ND |
| THCVa | *0.002 / 0.019* | *N/A* | ND | ND |
| CBDa | *0.001 / 0.026* | *N/A* | ND | ND |
| CBDVa | *0.001 / 0.018* | *N/A* | ND | ND |
| CBGa | *0.002 / 0.007* | *N/A* | ND | ND |
| CBCa | *0.001 / 0.015* | *N/A* | ND | ND |
| **SUM OF CANNABINOIDS** | | | 24.086 mg/mL | 2.5437% |

**Unit Mass: 30 milliliters per Unit / Serving Size: 1 milliliters per Serving**

| | | | |
|---|---|---|---|
| Δ9THC per Unit | *1100 per-package limit* | 13.290 mg/unit | PASS |
| Δ9THC per Serving | | 0.443 mg/serving | |
| Total THC per Unit | | 13.290 mg/unit | |
| Total THC per Serving | | 0.443 mg/serving | |
| CBD per Unit | | 665.490 mg/unit | |
| CBD per Serving | | 22.183 mg/serving | |
| Total CBD per Unit | | 665.490 mg/unit | |
| Total CBD per Serving | | 22.183 mg/serving | |
| Sum of Cannabinoids per Unit | | 722.580 mg/unit | |
| Sum of Cannabinoids per Serving | | 24.086 mg/serving | |
| Total Cannabinoids per Unit | | 722.580 mg/unit | |
| Total Cannabinoids per Serving | | 24.086 mg/serving | |

**MOISTURE TEST RESULT**

Not Tested

**DENSITY TEST RESULT**

0.9469 g/mL

Tested 01/06/2021

**Method:** QSP 7870 - Sample Preparation

**VISCOSITY TEST RESULT**

Not Tested

## Microbial Impurities Analysis

PCR AND PLATING

Analysis conducted by polymerase chain reaction (PCR) and fluorescence detection of microbial impurities.

**Method:** QSP 1221 - Analysis of Microbial Impurities

### MICROBIAL IMPURITIES TEST RESULTS (PCR) - 01/07/2021 PASS

| COMPOUND | ACTION LIMIT | RESULT | RESULT |
|---|---|---|---|
| **Shiga toxin-producing *Escherichia coli*** | *Detect* | **ND** | **PASS** |
| ***Salmonella* spp.** | *Detect* | **ND** | **PASS** |
| *Aspergillus fumigatus* | | NT | |
| *Aspergillus flavus* | | NT | |
| *Aspergillus niger* | | NT | |
| *Aspergillus terreus* | | NT | |

Analysis conducted by 3M™ Petrifilm™ and plate counts of microbial impurities.

**Method:** QSP 6794 - Plating with 3M™ Petrifilm™

### MICROBIAL IMPURITIES TEST RESULTS (PLATING)

| COMPOUND | RESULT (cfu/g) |
|---|---|
| Aerobic Plate Count | NT |
| Total Yeast and Mold | NT |