

# Certificate of Quality Assurance

**PRODUCT NAME:** Natural Tincture

**PRODUCT STRENGTH:** 225 mg

**LOT NUMBER:** HTNAT250-T266

**OIL BATCH NUMBER:** CONO19-89

**DATE OF MANUFACTURE:** 10/29/2019

*Expiration date is 18 months under sealed conditions.*

**DATE OF ANALYSIS:** 10/29/2019

**ACTIVE INGREDIENT:** Phytocannabinoid-Rich Hemp Oil

**INACTIVE INGREDIENTS:** Organic Olive Oil

## Physical Attributes of Raw Hemp Oil

Attribute	Acceptance Criteria	Result
Appearance	Viscous Dark Amber Oil Possible Crystal Formation	Conforms
Aroma	Characteristic Hemp Aroma	Conforms
Dissolution	Not Cloudy or Turbid, Characteristic Color	Conforms
Microbial Testing	Total Aerobic Count <2000 cfu/g Total Yeast and Mold <2000 cfu/g	Conforms

## Cannabinoid Potency of Raw Hemp Oil

Cannabinoid	Weight %
CBD	84.99
CBG	<0.03
CBN	<0.03
THC	ND
CBC	<0.03
THC-A	ND
CBD-A	<0.03

## Pesticides\*

Compound	Result	Compound	Result
Acequinocil	ND	Spinosad	ND
Pyrethrium	ND	Spirotetramat	ND
Spiromesifin	ND	Bifenazate	ND
Abamectin	ND	Fenoxycarb	ND
Imidacloprid	ND	Paclobutrazol	ND

## Terpene Results\*

Compound	Weight %	Compound	Weight %
$\beta$ -Bisabolene	1.0-3.0	Camphene	0.1-0.2
$\beta$ -Farnesene	1.0-2.0	E-Farnesene	0.1-0.2
Gualol	0.5-2.0	Farnesol	0.1-0.2
$\beta$ -Maaliene	0.5-2.0	$\alpha$ -Bisabolol	< 0.1
Calarene	0.5-1.5	p-Cymene	< 0.1
$\beta$ -Caryophyllene	0.1-1.0	Linalool	< 0.1
$\alpha$ -Humulene	0.1-1.0	Myrcene	< 0.1
Cadinene	0.1-1.0	Phytol	< 0.1
$\alpha$ -Gurjunene	0.1-0.5	Isopulegol	< 0.1
d-Limonene	0.1-0.5	Terpinene	< 0.1
Nerolidol	0.1-0.5	Geraniol	< 0.1
$\alpha$ -Pinene	0.1-0.5	Myrcene	< 0.1
Aristolene	0.1-0.3	$\gamma$ -Terpinene	< 0.1
Eucalyptol	0.1-0.2	$\delta$ -3-Carene	< 0.1

## Residual Solvents\*

Solvent	Weight %
Acetone	Compliant with USP<467>
Butane	Compliant with USP<467>
Ethanol	Compliant with USP<467>
Hexane	Compliant with USP<467>
Isobutane	Compliant with USP<467>
Isopropanol	Compliant with USP<467>
Pentane	Compliant with USP<467>

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## Heavy Metals\*

Metal	Result
Cadmium	Compliant with USP<233>
Lead	Compliant with USP<233>
Arsenic	Compliant with USP<233>
Mercury	Compliant with USP<233>

## Analysis Results for Finished Product

Attribute	Acceptance Criteria	Result
Appearance	Light Yellow to Green Liquid	Conforms
Aroma	Characteristic Hemp Odor	Conforms
Cannabidiol Content	95% to 110% of Label Claim	Conforms
THC Content	None Detected	Conforms

\* Results based on testing of multiple batches of hemp oil raw material.

Quality Certified by:



Matthew Plenert, Ph.D  
Head Chemist and Laboratory Manager

11-12-19

Date

QC Unit released by:



David Boaz  
QC Manager

11-12-19

Date

# Unflavored Tincture 225mg

FARM BILL  
COMPLIANT



SAMPLE ID  
**149230**

SAMPLE NAME  
**Unflavored Tincture 225mg**

MATRIX  
**Tincture**

BATCH ID  
**HTNAT250-T266**

COLLECTED  
**11/01/2019 10:47**

RECEIVED  
**11/01/2019 10:47**

SERVING SIZE  
**1**

SERVINGS PER PACKAGE  
**1**

DENSITY  
**0.9190 g/ml**

**TOTAL  
CBD**

**7.499**  
MG PER SERVING

**TOTAL  
THC**

**ND**  
MG PER SERVING

**TOTAL  
CANNABINOIDS**

**7.499**  
MG PER SERVING

**Chemical Residue**

No Analytes Detected



**Chemical Residue GC**


No Analytes Detected



**Heavy Metals**

Lead: 0.1215 ug/g



 Indicates that the hemp product passes some of the strictest testing standards available for cannabis and hemp.



## CANNABINOID ANALYSIS

Total THC,CBD value(s) have been decarboxylated.

TOTAL THC: ND per serving (ND) (ND)  
 TOTAL CBD: 7.499 mg per serving (7.499 mg/mL) (0.8160 %)  
 TOTAL CANNABINOIDS: 7.499 mg per serving (7.499 mg/mL) (0.8160 %)

UNIT OF MEASUREMENT: Milligrams per Milliliter(mg/mL)

ANALYTE	RESULT	LOD	LLOQ	ANALYTE	RESULT	LOD	LLOQ
D9THC	ND	0.0500	0.1000	D8THC	ND	0.0500	0.1000
CBG	ND	0.0500	0.1000	CBC	ND	0.0500	0.1000
THCv	ND	0.0500	0.1000	CBD	7.499 mg/mL (0.8160 %)	0.0500	0.1000
CBN	ND	0.0500	0.1000	CBDv	<1 mg/ml (<1 mg/ml)	0.0500	0.1000
THCa	ND	0.0500	0.1000	CBGa	ND	0.0500	0.1000
CBDa	ND	0.0500	0.1000				

### ADDITIONAL INFORMATION

Method: SOP-TECH-001  
 Instrument: UPLC-DAD

Sample Prepped 11/01/2019 17:18  
 Sample Analyzed 11/01/2019 20:21

Sample Approved 11/04/2019 17:21

## CHEMICAL RESIDUE ANALYSIS

UNIT OF MEASUREMENT: Micrograms per Gram(ug/g)

ANALYTE	RESULT	LOD	LLOQ	ACTION LEVEL	ANALYTE	RESULT	LOD	LLOQ	ACTION LEVEL
Abamectin	ND	0.0200	0.0400	0.3000	Acephate	ND	0.0200	0.0400	5.000
Acequinocyl	ND	0.0200	0.0400	4.000	Acetamiprid	ND	0.0200	0.0400	5.000
Aldicarb	ND	0.0200	0.0400	0.0	Azoxystrobin	ND	0.0200	0.0400	40.00
Bifenazate	ND	0.0200	0.0400	5.000	Bifenthrin	ND	0.0200	0.0400	0.5000
Boscalid	ND	0.0200	0.0400	10.00	Carbaryl	ND	0.0200	0.0400	0.5000
Carbofuran	ND	0.0200	0.0400	0.0	Chlorantraniliprole	ND	0.0200	0.0400	40.00
Chlorfenapyr	ND	0.0200	0.0400	0.0	Chlorpyrifos	ND	0.0200	0.0400	0.0
Clofentezine	ND	0.0200	0.0400	0.5000	Coumaphos	ND	0.0200	0.0400	0.0
Cyfluthrin	ND	0.1000	0.2000	1.000	Cypermethrin	ND	0.0400	0.1000	1.000
Daminozide	ND	0.0200	0.0400	0.0	Diazinon	ND	0.0200	0.0400	0.2000
Dichlorvos	ND	0.0200	0.0400	0.0	Dimethoate	ND	0.0200	0.0400	0.0
Dimethomorph	ND	0.0099	0.0198	20.00	Ethoprophos	ND	0.0200	0.0400	0.0
Etofenprox	ND	0.0200	0.0400	0.0	Etoxazole	ND	0.0200	0.0400	1.500
Fenhexamid	ND	0.0200	0.0400	10.00	Fenoxycarb	ND	0.0200	0.0400	0.0
Fenpyroximate	ND	0.0200	0.0400	2.000	Fipronil	ND	0.0200	0.0400	0.0
Flonicamid	ND	0.0200	0.0400	2.000	Fludioxonil	ND	0.0200	0.0400	30.00
Hexythiazox	ND	0.0200	0.0400	2.000	Imazalil	ND	0.0200	0.0400	0.0
Imidacloprid	ND	0.0200	0.0400	3.000	KresoximMethyl	ND	0.0200	0.0400	1.000
Malathion	ND	0.0200	0.0400	5.000	Metalaxyl	ND	0.0200	0.0400	15.00
Methiocarb	ND	0.0200	0.0400	0.0	Methomyl	ND	0.0200	0.0400	0.1000
Mevinphos	ND	0.0200	0.0400	0.0	Myclobutanil	ND	0.0200	0.0400	9.000
Naled	ND	0.0200	0.0400	0.5000	Oxamyl	ND	0.0200	0.0400	0.2000
Paclobutrazol	ND	0.0200	0.0400	0.0	Permethrins	ND	0.0200	0.0400	20.00



Phosmet	ND	0.0200	0.0400	0.2000	PiperonylButoxide	ND	0.0200	0.0400	8.000
Prallethrin	ND	0.0200	0.0400	0.4000	Propiconazole	ND	0.0200	0.0400	20.00
Propoxur	ND	0.0200	0.0400	0.0	Pyrethrins	ND	0.0178	0.0356	1.000
Pyridaben	ND	0.0200	0.0400	3.000	Spinetoram	ND	0.0200	0.0400	3.000
Spinosad	ND	0.0200	0.0400	3.000	Spiromesifen	ND	0.0200	0.0400	12.00
Spirotetramat	ND	0.0200	0.0400	13.00	Spiroxamine	ND	0.0200	0.0400	0.0
Tebuconazole	ND	0.0200	0.0400	2.000	Thiacloprid	ND	0.0200	0.0400	0.0
Thiamethoxam	ND	0.0200	0.0400	4.500	Trifloxystrobin	ND	0.0200	0.0400	30.00

#### ADDITIONAL INFORMATION

Method: SOP-TECH-002  
Instrument: LC-MS/MS

Sample Prepped 11/01/2019 15:05  
Sample Analyzed 11/01/2019 15:06

Sample Approved 11/04/2019 14:41

## CHEMICAL RESIDUE GC ANALYSIS

UNIT OF MEASUREMENT: Micrograms per Gram(ug/g)

ANALYTE	RESULT	LOD	LLOQ	ACTION LEVEL	ANALYTE	RESULT	LOD	LLOQ	ACTION LEVEL
Captan	ND	0.1000	0.2000	5.000	Chlordane	ND	0.0400	0.1000	0.0
MethylParathion	ND	0.0400	0.1000	0.0	PCNB	ND	0.0200	0.0400	0.2000

#### ADDITIONAL INFORMATION

Method: SOP-TECH-010  
Instrument: GC-MS/MS

Sample Prepped 11/01/2019 18:10  
Sample Analyzed 11/01/2019 18:18

Sample Approved 11/04/2019 16:32

## HEAVY METALS ANALYSIS

UNIT OF MEASUREMENT: Micrograms per Gram(ug/g)

ANALYTE	RESULT	LOD	LLOQ	ACTION LEVEL	ANALYTE	RESULT	LOD	LLOQ	ACTION LEVEL
Arsenic	ND	0.0200	0.0500	1.500	Cadmium	ND	0.0050	0.0500	0.5000
Lead	0.1215 ug/g	0.0100	0.0500	0.5000	Mercury	ND	0.0030	0.0500	3.000

#### ADDITIONAL INFORMATION

Method: SOP-TECH-013  
Instrument: ICP-MS

Sample Prepped 11/01/2019 15:21  
Sample Analyzed 11/04/2019 07:45

Sample Approved 11/04/2019 12:51

This report applies to the sample investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. This report provides technical results for a specific sample and the report shall not be altered, modified, supplemented, or abstracted in any manner. Any violation of these conditions renders the report and its results void.

All LQC samples required by state regulations were performed and met the acceptance criteria.

### DATA REVIEWED AND APPROVED BY



11/05/2019

Swetha Kaul, PhD

Date

HTNAT250-T266

<b>Batch ID:</b>	N/A	<b>Test ID:</b>	8101255.033
<b>Reported:</b>	10-Nov-2019	<b>Method:</b>	Edible - Test Methods: TM05, TM06
<b>Type:</b>	Edible		
<b>Test:</b>	Microbial Contaminants		

**MICROBIAL CONTAMINANTS**



Contaminant	Result (CFU/g)*
<b>Total Aerobic Count**</b>	None Detected
<b>Total Coliforms**</b>	None Detected
<b>Total Yeast and Molds**</b>	None Detected
<b>E. coli</b>	None Detected
<b>Salmonella</b>	None Detected

\* CFU/g = Colony Forming Unit per Gram

\*\* Values recorded in scientific notation, a common microbial practice of expressing numbers that are too large to be conveniently written in decimal form.

Examples:  $10^2 = 100$  CFU  
 $10^3 = 1,000$  CFU  
 $10^4 = 10,000$  CFU  
 $10^5 = 100,000$  CFU

## NOTES:

Free from visual mold, mildew, and foreign matter  
TYM: None Detected  
Total Aerobic: None Detected**FINAL APPROVAL**  
Mara Miller  
10-Nov-2019  
4:33 PM  
Mike Branvold  
10-Nov-2019  
6:55 PM

PREPARED BY / DATE

APPROVED BY / DATE

Testing results are based solely upon the sample submitted to Botanacor Services, LLC, in the condition it was received. Botanacor Services, LLC warrants that all analytical work is conducted professionally in accordance with all applicable standard laboratory practices using validated methods. Data was generated using an unbroken chain of comparison to NIST traceable Reference Standards and Certified Reference Materials. This report may not be reproduced, except in full, without the written approval of Botanacor Services, LLC.