



Certificate ID: **89501**

Received: **11/3/20**

Scan QR Code for authenticity



Client Sample ID: **T. Roots Oil**

Lot Number: **50**

Matrix: **Tincture/Infused Oil - Hemp Seed Oil**



Authorization: Chris Hudalla, Chief Science Officer	Signature: <i>Christopher Hudalla</i>	Date: 12/12/2020
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The data contained within this report was collected in accordance with the requirements of ISO/IEC17025:2017. I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the test article listed in this report. Reports may not be reproduced except in their entirety.

CN: Cannabinoid Profile & Potency [WI-10-17 & WI-10-17-01]

Analyst: *JFD*

Test Date: *11/24/2020*

The client sample was analyzed for plant-based cannabinoids by Liquid Chromatography (LC). The collected data was compared to data collected for certified reference standards at known concentrations.

89501-CN

ID	Weight %	Concentration (mg/mL)			
D9-THC	0.105	0.959			
THCV	ND	ND			
CBD	2.22	20.3			
CBDV	ND	ND			
CBG	0.0197	0.180			
CBC	0.0729	0.667			
CBN	ND	ND			
THCA	ND	ND			
CBDA	ND	ND			
CBGA	ND	ND			
D8-THC	ND	ND			
exo-THC	ND	ND			
Total	2.42	22.1	0%	Cannabinoids (wt%)	2.2%
Max THC	0.105	0.959		Limit of Quantitation (LOQ) = 0.0115 wt%	
Max CBD	2.23	20.4		Limit of Detection (LOD) = 0.0038 wt%	

Ratio of Total CBD to THC 21.2:1

Max THC (and Max CBD) are calculated values for total cannabinoids after heating, assuming complete decarboxylation of the acid to the neutral form. It is calculated based on the weight loss of the acid group during decarboxylation: Max THC = (0.877 x THCA) + THC. This calculation does not include other cannabinoid isomers (eg. D8-THC and exo-THC). ND = None detected above the limits of detection (LOD), which is one third of LOQ.

EA: Elemental Analysis [WI-10-13]*Analyst: CJS**Test Date: 12/5/2020*

This test method was performed in accordance with the requirements of ISO/IEC 17025. These results relate only to the test article listed in this report. Reports may not be reproduced except in their entirety.

89501-EA

Symbol	Metal	Conc. ¹ (µg/kg)	RL (µg/kg)	Limits ² (µg/kg)	Status
Al	Aluminum	497	50	-	
As	Arsenic	ND	50	200	PASS
Cd	Cadmium	ND	50	200	PASS
Ca	Calcium	2,790	500	-	
Cr	Chromium	ND	50	300	PASS
Co	Cobalt	ND	50	300	PASS
Cu	Copper	251	50	3,000	PASS
Fe	Iron	479	50	-	
Pb	Lead	ND	50	500	PASS
Mg	Magnesium	7,010	50	-	
Mn	Manganese	571	50	-	
Hg	Mercury	ND	50	100	PASS
Mo	Molybdenum	ND	50	1,000	PASS
Ni	Nickel	ND	50	500	PASS
P	Phosphorus	37,900	500	-	
K	Potassium	48,400	500	-	
Se	Selenium	ND	50	-	
Ag	Silver	ND	50	700	PASS
S	Sulfur	ND	500	-	
Sn	Tin	649	500	6,000	PASS
Zn	Zinc	76.0	50	-	

1) ND = None detected to the Method Detection Limit (MDL)

2) USP recommended maximum daily limits for inhalational drug product.

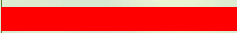


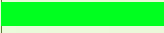




TP: Terpenes Profile [WI-10-27]

Analyst: AEG

Test Date: 11/23/2020

Client sample analysis was performed using full evaporative technique (FET) headspace sample delivery and gas chromatographic (GC) compound separation. A combination of flame ionization detection (FID) and/or mass spectrometric (MS) detection with mass spectral confirmation against the National Institute of Standards and Technology (NIST) Mass Spectral Database, Revision 2017 were used. Chromatographic and/or mass spectral data were processed by quantitatively comparing the analytical peak areas against calibration curves prepared from certified reference standards.

89501-TP

Compound	CAS	Conc. (wt%)	Conc. (ppm)	Qualitative Profile
alpha-pinene	80-56-8	<RL	<RL	
camphene	79-92-5	ND	ND	
sabinene*	3387-41-5	ND	ND	
beta-myrcene	123-35-3	0.0006	5.74	
beta-pinene	127-91-3	ND	ND	
alpha-phellandrene	99-83-2	ND	ND	
delta-3-carene	13466-78-9	ND	ND	
alpha-terpinene	99-86-5	ND	ND	
alpha-ocimene	502-99-8	ND	ND	
D-limonene	138-86-3	<RL	<RL	
p-cymene	99-87-6	ND	ND	
cis-beta-ocimene	3338-55-4	<RL	<RL	
eucalyptol	470-82-6	ND	ND	
gamma-terpinene	99-85-4	ND	ND	
terpinolene	586-62-9	ND	ND	
linalool	78-70-6	ND	ND	
L-fenchone*	7787-20-4	ND	ND	
isopulegol	89-79-2	ND	ND	
menthol*	89-78-1	ND	ND	
geraniol	106-24-1	ND	ND	
beta-caryophyllene	87-44-5	0.0009	8.60	
alpha-humulene	6753-98-6	<RL	<RL	
cis-nerolidol	3790-78-1	ND	ND	
trans-nerolidol	40716-66-3	ND	ND	
guaiol	489-86-1	<RL	<RL	
caryophyllene oxide	1139-30-6	ND	ND	
alpha-bisabolol	23089-26-1	<RL	<RL	

Total Terpene: <0.1 wt%

* Certified reference standard not available for this compound. Concentration is estimated using the response factor from alpha-pinene. ND = None Detected. RL = Reporting Limit of 5 ppm.

END OF REPORT