



CERTIFICATE OF ANALYSIS

Customer: Root Bioscience - Morrisville, NC 27560

Order #: 707950
 Batch #: 19283C
 Order Date: 10/22/2019
 Collection Date: 10/22/2019
 Report Date: 11/01/2019

Specimen Type: Extract
 Description: 2000mg Muscle Cream
 Extracted From: Hemp
 Method: SOP-3

Initial Gross Weight: 30886.00(mg)
 Specimen Weight: 106.84(mg)

Potency - 11

(HPLC)

Analyte	Result (mg/g)	(%)	LOQ (%)	Analyte	Result (mg/g)	(%)	LOQ (%)	Analyte	Result (mg/g)	(%)	LOQ (%)
CBC		ND	0.001	CBD	25.240	2.524	0.001	CBDA		ND	0.001
CBDV	0.289	0.029	0.001	CBG	0.532	0.053	0.001	CBGA		ND	0.001
CBN		ND	0.001	Delta-8-THC		ND	0.001	Delta-9-THC		ND	0.001
THCA-A		ND	0.001	THCV	0.155	0.016	0.001	Total CBD	25.240	2.524	0.001
Total THC		ND	0.001								

Pesticides (Passed)

(LCMS/MS)

Analyte	Action Level (ppm)	Result (ppm)	LOQ (ppm)	Analyte	Action Level (ppm)	Result (ppm)	LOQ (ppm)	Analyte	Action Level (ppm)	Result (ppm)	LOQ (ppm)
Abamectin	0.500	<LOQ	0.100	Acephate	0.400	<LOQ	0.100	Acequinocyl	2.000	<LOQ	0.750
Acetamiprid	0.200	<LOQ	0.100	Aldicarb	0.400	<LOQ	0.100	Azoxystrobin	0.200	<LOQ	0.100
Bifenazate	0.200	<LOQ	0.100	Bifenthrin	0.200	<LOQ	0.100	Boscalid	0.400	<LOQ	0.100
Carbaryl	0.200	<LOQ	0.100	Carbofuran	0.200	<LOQ	0.100	Chlorantraniliprole	0.200	<LOQ	0.100
Chlorpyrifos	0.200	<LOQ	0.100	Clofentezine	0.200	<LOQ	0.100	Cypermethrin	1.000	<LOQ	0.100
Daminozide	1.000	<LOQ	0.100	Diazinon	0.200	<LOQ	0.100	Dichlorvos	0.100	<LOQ	0.100
Dimethoate	0.200	<LOQ	0.100	Ethoprophos	0.200	<LOQ	0.100	Etofenprox	0.400	<LOQ	0.100
Etoxazole	0.200	<LOQ	0.100	Fenoxycarb	0.200	<LOQ	0.100	Fipronil	0.400	<LOQ	0.100
Flonicamid	1.000	<LOQ	0.100	Fludioxonil	0.400	<LOQ	0.100	Hexythiazox	1.000	<LOQ	0.100
Imazalil	0.200	<LOQ	0.100	Imidacloprid	0.400	<LOQ	0.100	Kresoxim Methyl	0.400	<LOQ	0.100
Malathion A	0.200	<LOQ	0.100	Metalaxyl	0.200	<LOQ	0.100	Methiocarb	0.200	<LOQ	0.100
Methomyl	0.400	<LOQ	0.100	MGK-264	0.200	<LOQ	0.100	Myclobutanil	0.200	<LOQ	0.100
Naled	0.500	<LOQ	0.100	Oxamyl	1.000	<LOQ	0.100	Paclbutrazol	0.400	<LOQ	0.100
Parathion-methyl	0.200	<LOQ	0.250	Permethrin	0.200	<LOQ	0.100	Phosmet	0.200	<LOQ	0.100
Piperonylbutoxide	2.000	<LOQ	0.100	Prallethrin	0.200	<LOQ	0.100	Propiconazole	0.400	<LOQ	0.100
Propoxur	0.200	<LOQ	0.100	Pyrethrins	1.000	<LOQ	0.100	Pyridaben	0.200	<LOQ	0.100
Spinosyn A	0.200	<LOQ	0.100	Spinosyn D	0.200	<LOQ	0.100	Spiromesifen	0.200	<LOQ	0.100
Spirotetramat	0.200	<LOQ	0.100	Spiroxamine	0.400	<LOQ	0.100	Tebuconazole	0.400	<LOQ	0.100
Thiacloprid	0.200	<LOQ	0.100	Thiamethoxam	0.200	<LOQ	0.100	Trifloxystrobin	0.200	<LOQ	0.100

Xueli Gao, Ph.D., DABT
Lab Toxicologist

Aixia Sun, D.H.Sc., M.Sc., B.Sc., MT (AAB)
Principal Scientist

* Total CBD = CBD + (CBD-A * 0.877). Total THC = THCA-A * 0.877 + Delta 9 THC, ND = <LOQ, T-Caryophyllene = Trans-Caryophyllene, <LOQ = Less Than Limit of Quantitation, QNS = Quantity Not Sufficient. (%) = Percent, (ppm) = Parts per Million, (ppb) = Parts per Billion, (µg/Kg) = Microgram per Kilogram, (mg/g) = Milligram per Gram, ppm = (µg/g), ppb = (µg/kg).

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Residual Solvents (Passed)

								(GC/GCMS)			
Analyte	Action Level (ppm)	Result (ppm)	LOQ (ppm)	Analyte	Action Level (ppm)	Result (ppm)	LOQ (ppm)	Analyte	Action Level (ppm)	Result (ppm)	LOQ (ppm)
Acetone	5,000.000	<LOQ	87.900	Benzene	1.600	<LOQ	1.600	Chloroform	53.000	<LOQ	53.000
Ethanol	5,000.000	Passed	26.700	Hexane	60.000	<LOQ	36.600	I-Butane	5,000.000	<LOQ	100.000
Isopropanol	5,000.000	<LOQ	52.300	Methanol	3,000.000	<LOQ	87.900	N-Butane	5,000.000	<LOQ	200.000
Pentane	5,000.000	<LOQ	389.500	Toluene	890.000	<LOQ	38.400				

Heavy Metals (Passed)

								(ICP-MS)			
Analyte	Action Level (ppb)	Result (ppb)	LOQ (ppb)	Analyte	Action Level (ppb)	Result (ppb)	LOQ (ppb)	Analyte	Action Level (ppb)	Result (ppb)	LOQ (ppb)
Arsenic (As)	500.000	<LOQ	100.000	Cadmium (Cd)	500.000	<LOQ	100.000	Lead (Pb)	500.000	<LOQ	100.000
Mercury (Hg)	500.000	<LOQ	100.000								

Mycotoxins (Passed)

								(LCMS/MS)			
Analyte	Action Level (ppb)	Result (ppb)	LOQ (ppb)	Analyte	Action Level (ppb)	Result (ppb)	LOQ (ppb)	Analyte	Action Level (ppb)	Result (ppb)	LOQ (ppb)
Aflatoxin B1		<LOQ	6.000	Aflatoxin B2		<LOQ	6.000	Aflatoxin G1		<LOQ	6.000
Aflatoxin G2		<LOQ	6.000	Aflatoxin Total	20.000	<LOQ	6.000	Ochratoxin A	20.000	<LOQ	12.000

Pathogenic Microbiology (Passed)

						(Micro Array)		
Analyte	Result (cfu/g)	Remark	Analyte	Result (cfu/g)	Remark	Analyte	Result (cfu/g)	Remark
Aspergillus Flavus	<1	Absence	Aspergillus Fumigatus	<1	Absence	Aspergillus Niger	<1	Absence
Aspergillus Terreus	<1	Absence	Salmonella	<1	Absence	STEC E. Coli	<1	Absence

Filth and Foreign Material (Passed)

						(Electronic Balance)		
Analyte	Action Level (area ratio)	Result (area ratio)	Analyte	Action Level (mg/Kg)	Result (mg/Kg)	Analyte	Action Level (%)	Result (%)
Covered Area	0.250	0.000	Feces	0.500	0.000	Weight %	5.000	0.000

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