F.A.S.T. LABORATORIES/RESEARCH

Arkansas Location
Laboratory Address: 232 S. Broadview St.
Greenbrier, AR 72058
Telephone: (501) 679-2616

Oklahoma Location
Laboratory Address: 3680 E. Interstate 240 Service Rd.
Oklahoma City, OK 73135
Telephone: (405) 595-0344
Email Address: Info@FASTLaboratories.com

CERTIFICATE OF ANALYSIS

Project: Medical Cannabis
Order ID: 2019000463
Customer ID: 90477779
Customer Name: Red Earth Cannabis
Harvest/Extract Lot:
Harvest/Extract Date:

Cultivar (Strain): Caramel
Sample Date: 02/20/2019
Lab ID: 2019001701
Date Received: 02/20/2019
Sample Matrix: Edible
Date Completed:

Remarks:

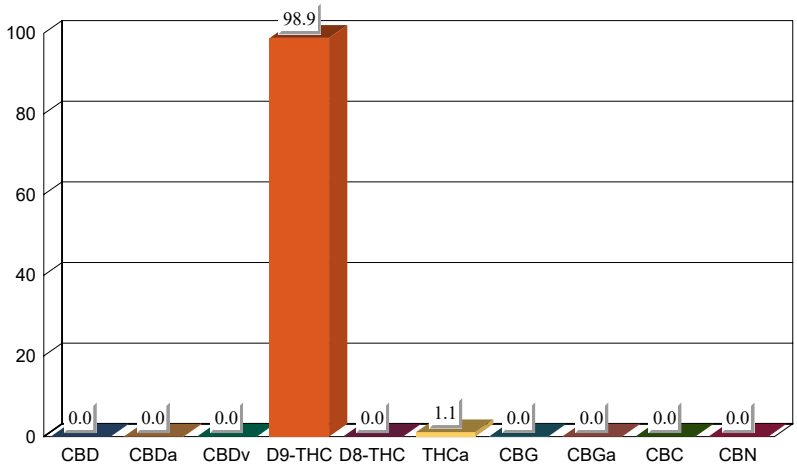
Analysis Date/Time: 02-25-2019 2340
Analyst: KWF
Method: HPLC/UV
Instrument: Agilent 1100
Moisture Content (%): -
Water Activity (aw): - at - ºC

Cannabinoid	Result (%)	Result (mg/g)	Reporting Limit (mg/g)	Per Unit (mg)
CBD	<RL	<RL	0.005	-
CBDa	<RL	<RL	0.005	-
CBDv	<RL	<RL	0.005	-
Δ9-THC	0.0912	0.912	0.005	16.4
Δ8-THC	<RL	<RL	0.005	-
THCa	0.0010	0.010	0.005	0.180
CBC	<RL	<RL	0.005	-
CBG	<RL	<RL	0.005	-
CBGa	<RL	<RL	0.005	-
CBN	<RL	<RL	0.005	-
TOTAL	0.092	0.922		16.6
TOTAL THC	0.0921	0.921		16.6
TOTAL CBD	<RL	<RL		-

UNIT MASS (g): 18.0

Cannabinoid Distribution

(% of Total Cannabinoids)



Deviations from standard operating procedure: None

Recoveries for all analyte standards: 90-110%
Replicate Uncertainties: <5% RSD, <20% RPD
Sample/Reagent Blanks: <RL for all analytes

Values for plant matter are adjusted for moisture content.

Total THC = (THCa x 0.877) + Δ9-THC
Total CBD = (CBDa x 0.877) + CBD

Percentage results are reported by mass.
mg/g results are reported as mass component per mass material.

Abbreviations: UV - Ultraviolet, HPLC - High Pressure Liquid Chromatography, RL - Reporting Limit, RPD - Relative Percent Difference, RSD - Relative Standard Deviation

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Kyle W. Felling, Ph.D.
Laboratory Director

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Harvest/Extract Date:

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Sample Matrix: Edible
Date Completed:

Remarks:

HEAVY METAL PROFILE

Analysis Date/Time: 02-23-2019 1248 **Method:** ICP-OES (EPA 200.7)
Analyst: KWF **Instrument:** Agilent 720-ES
Deviations from SOP: None

Heavy Metal	Result (µg/kg)	Action Level (µg/kg)
Arsenic (As)	-	400
Cadmium (Cd)	-	440
Lead (Pb)	-	1000
Mercury (Hg)	-	200

Abbreviations: ICP - Inductively-Coupled Plasma, OES - Optical Emission Spectroscopy, RL - Reporting Limit, AL - Action Level

Color Key

RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

Reporting Limit (µg/kg)
50

"-" not detected above reporting limit

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Harvest/Extract Date:

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Sample Date: 02/20/2019
Lab ID: 2019001701
Date Received: 02/20/2019
Sample Matrix: Edible
Date Completed:

Remarks:

MICROBIOLOGICAL PROFILE

Analysis Date/Time: 02-25-2019 0800
Analyst: KWF
Method: Hardy Diagnostics CompactDry
Instrument: Plate/Incubation (35ºC)
Deviations from SOP: None

Bacteria/Microbe	Result (CFU/mL)	Action Level (CFU/mL)
Coliforms, Total	Absent	100
Escherichia Coli (E. Coli)	Absent	1
Yeast	Absent	104
Mold	Absent	104
Salmonella spp.	Absent	1

Abbreviations: EC - Escherichia Coli, CFU - Colony-Forming Unit, RL - Reporting Limit, AL - Action Level

Color Key

RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

Reporting Limit (CFU/mL)
1

"Absent" not detected above reporting limit

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Sample Matrix: Edible
Date Completed:

Remarks:

PESTICIDE PROFILE

Analysis Date/Time: 02-25-2019 0344 **Method:** LC/MS/MS and GC/MS
Analyst: KWF **Instrument:** Waters TQD and Agilent 7890/5975
Deviations from SOP: None

Pesticide	Result (µg/g)	Action Level (µg/g)	Pesticide	Result (µg/g)	Action Level (µg/g)
Abamectin (71751-41-2)	-	0.5	Imazalil (35554-44-0)	-	0.2
Acephate (30560-19-1)	-	0.4	Imidacloprid (138261-41-3)	-	0.4
Acequinocyl (57960-19-7)	-	2	Kresoxim-methyl* (143390-89-0)	-	0.4
Acetamiprid (135410-20-7)	-	0.2	Malathion (121-75-5)	-	0.2
Aldicarb (116-06-3)	-	0.4	Metalaxyl* (57837-19-1)	-	0.2
Azoxystrobin (131860-33-8)	-	0.2	Methiocarb (2032-65-7)	-	0.2
Bifenazate* (149877-41-8)	-	0.2	Methomyl (16752-77-5)	-	0.4
Bifenthrin* (82657-04-3)	-	0.2	Methyl parathion* (298-0-0)	-	0.2
Boscalid* (188425-85-6)	-	0.4	MGK 264* (113-48-4)	-	0.2
Carbaryl (63-25-2)	-	0.2	Myclobutanil (88671-89-0)	-	0.2
Carbofuran (1563-66-2)	-	0.2	Naled (300-76-5)	-	0.5
Chlorantraniliprole (800008-45-7)	-	0.2	Oxamyl (23135-22-0)	-	1
Chlorfenapyr* (122453-73-0)	-	1	Paclobutrazol* (76738-62-0)	-	0.4
Chlorpyrifos* (2921-88-2)	-	0.2	Permethrins* (52645-53-1)	-	0.2
Clofentezine (74115-24-5)	-	0.2	Phosmet* (732-11-6)	-	0.2
Cyfluthrin* (68359-37-5)	-	1	Piperonyl butoxide* (51-03-6)	-	2
Cypermethrin* (52315-07-8)	-	1	Prallethrins* (2331-36-9)	-	0.2
Daminozide (1596-84-5)	-	1	Propiconazole (60207-90-1)	-	0.4
DDVP (62-73-7)	-	0.1	Propoxur* (114-26-1)	-	0.2
Diazinon* (333-41-5)	-	0.2	Pyrethrins* (8003-34-7)	-	1
Dimethoate (60-51-5)	-	0.2	Pyridaben* (96489-71-3)	-	0.2
Ethoprophos* (13194-48-4)	-	0.2	Spinosad A (168316-95-8)	-	0.2
Etofenprox (80844-07-1)	-	0.4	Spinosad D (168316-95-8)	-	0.2
Etoxazole (153233-91-1)	-	0.2	Spiromesifen (283594-90-1)	-	0.2
Fenoxycarb (72490-01-8)	-	0.2	Spirotetramat (203313-25-1)	-	0.2
(E)-Fenpyroximate (134098-61-6)	-	0.4	Spiroxamine (118134-30-8)	-	0.4
Fipronil* (120068-37-3)	-	0.4	Tebuconazole (80443-41-0)	-	0.4
Flonicamid (158062-67-0)	-	1	Thiacloprid (111988-49-9)	-	0.2
Fludioxinil (131341-86-1)	-	0.4	Thiamethoxam (153719-23-4)	-	0.2
Hexythiazox (78587-05-0)	-	1	Trifloxystrobin* (141517-21-7)	-	0.2

Color Key

RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

Reporting Limit (µg/g)
1/2 of AL

"-" not detected above reporting limit

"*" analyzed by GC/MS
(all others analyzed by LC/MS/MS)

Permethrins measured as the cumulative residue of the *cis*- and *trans*- permethrin isomers

Pyrethin measured as the cumulative residue of pyrethrin I, cinerin I, and jasmolin I.

Pesticide	Synonym(s)	Pesticide	Synonym(s)	Pesticide	Synonym(s)
Cyfluthrin	Baythroid	Myclobutanil	Systhane	Propiconazole	Tilt
DDVP	Dichlorvos	Naled	Dibrom	Propoxur	Baygon
Ethoprophos	Prophos	Phosmet	Imidan		

Abbreviations: LC - Liquid Chromatography, GC - Gas Chromatography, MS - Mass Spectrometry, RL - Reporting Limit, AL - Action Level, CAS - Chemical Abstract Services

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Lab ID: 2019001701
Date Received: 02/20/2019
Sample Matrix: Edible
Date Completed:

Remarks:

RESIDUAL SOLVENT PROFILE

Analysis Date/Time: 02-25-2019 0242
Analyst: KWF
Method: HS/GC/MS (USP <467>)
Instrument: Agilent 7890/5975
Deviations from SOP: None

Solvent	Result (µg/g)	Action Level (µg/g)	Solvent	Result (µg/g)	Action Level (µg/g)
Acetone (67-64-1)	-	1000	n-Heptane (142-82-5)	-	1000
Acetonitrile (75-5-8)	-	410	n-Hexane (110-54-3)	-	60
Benzene (71-43-2)	-	2	Isobutane (75-28-5)	-	1000
n-Butane (106-97-2)	-	1000	Isopropanol (67-63-0)	-	1000
1-Butanol (71-36-3)	-	5000	Isopropyl acetate (108-21-4)	-	5000
2-Butanol (78-92-2)	-	5000	Isopropyl benzene (98-82-8)	-	70
2-Butanone (78-93-3)	-	5000	Methanol (67-56-1)	-	3000
Cyclohexane (110-82-7)	-	1000	2-Methylbutane (78-78-4)	-	1000
1,2-Dimethoxyethane (110-71-4)	-	100	Methylene chloride (75-9-2)	-	600
N,N-Dimethylacetamide (127-19-5)	-	1090	2-Methylpentane (107-83-5)	-	60
2,2-Dimethylbutane (75-83-2)	-	290	3-Methylpentane (96-10-0)	-	60
2,3-Dimethylbutane (79-29-8)	-	290	n-Pentane (109-66-0)	-	1000
N,N-Dimethylformamide (68-12-2)	-	880	1-Pentanol (71-41-0)	-	5000
Dimethylsulfoxide (67-68-5)	-	5000	n-Propane (74-98-6)	-	1000
1,4-Dioxane (123-91-1)	-	380	1-Propanol (71-23-8)	-	5000
Ethanol (64-17-5)	-	5000	Pyridine (110-86-1)	-	200
2-Ethoxyethanol (110-80-5)	-	160	Tetrahydrofuran (109-99-9)	-	720
Ethyl ether (60-29-7)	-	5000	Tetramethylene sulfone (126-33-0)	-	160
Ethyl acetate (141-78-6)	-	5000	Toluene (108-88-3)	-	180
Ethyl benzene (100-41-4)	-	217	o-Xylene (95-47-6)	-	430
Ethylene glycol (107-21-1)	-	620	m,p-Xylene (108-38-3 or 106-42-3)	-	430
Ethylene oxide (75-21-8)	-	50	Xylenes* (1330-20-7)	-	430

Color Key

RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

Reporting Limit (µg/g)
1/2 of AL

"-" not detected above reporting limit
"*" - o,m,p-Xylene and Ethylbenzene

Solvent	Synonym(s)	Solvent	Synonym(s)	Solvent	Synonym(s)
Acetonitrile	Methyl cyanide, ACN	2-Ethoxyethanol	Cellosolve, Ethyl glycol	Methanol	Methyl alcohol
1-Butanol	n-Butanol, Butyl alcohol	Ethyl ether	Diethyl ether, Ether	2-Methylbutane	Isopentane
2-Butanol	sec-Butyl alcohol	Ethyl acetate	EtOAc	Methylene chloride	Dichloromethane
2-Butanone	Methyl ethyl ketone, MEK	Ethyl benzene	Phenylethane	2-Methylpentane	Isohexane
1,2-Dimethoxyethane	Monoglyme	Ethylene glycol	1,2-Ethanediol	1-Pentanol	n-Amyl alcohol
2,2-Dimethylbutane alcohol	Neohexane	Ethylene oxide	Oxirane	1-Propanol	Propyl
2,3-Dimethylbutane	Diisopropyl	Isobutane	2-Methylpropane	Tetrahydrofuran	THF
N,N-Dimethylformamide	DMF	Isopropanol	2-Propanol, IPA	Tetramethylene sulfone	Sulfolane
Dimethylsulfoxide	DMSO	Isopropyl acetate	Acetic acid isopropyl ester	Xylene	Dimethylbenzene

Abbreviations: HS - Headspace, GC - Gas Chromatography, MS - Mass Spectrometry, RL - Reporting Limit, AL - Action Level, CAS - Chemical Abstract Services

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