

Botany Evolution LLC

2510 Kirby Circle NE

Palm Bay, FL 32945

321-802-4583

Certificate Of Analysis

Sample Identification Information

<u>Date of Analysis</u>	5/28/2024	<u>Country of Origin</u>	SOLOMON ISLANDS
<u>Sample:</u>	S2120	<u>Country of Processing</u>	USA
<u>Product Name</u>	CHIEF LATERAL ROOTS	<u>Manufacture Date</u>	Apr-24
<u>Lot#</u>	SIK2404-CLR5	<u>Best By Date</u>	Apr-27

General Product Specifications

<u>Product Species</u>	Piper Methysticum	<u>Common Names</u>	Kava kava, Awa, Yagona
<u>Part Used</u>	Root	<u>Appearance</u>	Yellow, Brown, beige powder

<u>Analyzed Characteristics</u>	<u>Specification</u>	<u>Result</u>	<u>Test Method</u>
<u>Standardization</u>	2-17% Kavalactones	16.80%	HPLC
<u>Identification</u>	Complies by HPLC	Conform	HPLC
<u>Kavalactone Profile</u>	Noble	PASS	HPLC
<u>Mesh Size</u>	60-30	60	Sieve
<u>Color</u>	Beige to Yellow	Pass	Visual
<u>Odor</u>		Pass	Organoleptic
<u>Taste</u>		Pass	Organoleptic
<u>Chemotype</u>		245631	HPLC
<u>K/DHM</u>		1.6	Calculation

Kavalactones	Code	Peaks Ref. (elution order)	Correction Factor	Area *	Area %	Corrected Kavalactones	Chemotype Identifier
Standard Kavain	K			2394			
Methysticin	M	1	2.21	1800.107	12.87%	2.31%	6
Dihydromethysticin	DHM	2	3.38	1223.099	8.75%	2.40%	5
Kavain	K	3	1	6498.09	46.46%	3.78%	4
Dihydrokavain	DHK	4	3.48	2389.64	17.09%	4.83%	2
Desmethoxyyangonin	DMY	5	2.52	832.693	5.95%	1.22%	1
Yangonin	Y	6	3.12	1241.927	8.88%	2.25%	3
Kavalactones			Total:	13985.556	100.00%	16.80%	245631

*See data in attachment HPLC1100 Agilent Certificate with Chromatogram graph.

This result are in house tested and the best of our knowledge and experience. Using calibrated equipment.

We are dedicated to offer the best Quality of Botanical products on the market. We test and stand behind our products.

Disclaimer* the test results are accurate to the best of our knowledge and are based upon reputable laboratory and industry standard testing methods.

These results should not be used as a final determination for use in a finished product. It is recommended that you verify these test results with an in house quality control department or obtain an additional independent third party lab to verify that this material meets specifications

Botany Evolution, its board of directors, contract laboratories, employees, and affiliates are held harmless from any loss or damages resulting from the use or misuse of this document. The appropriate use of this product is the sole responsibility of the user of the purchasing party.

Chemist Rustil Youngs

Date 5/29/24

SAMPLE S2120
Vial 12

0.75279g/50mL

wavelength 246 nm

C:\CHEM32\1\DATA\KAVA_05_28_2024_15MINSTDTESTMETHOD 2024-05-28 16-38-07\01->
SEQUENCE C:\CHEM32\1\DATA\KAVA_05_28_2024_ ->

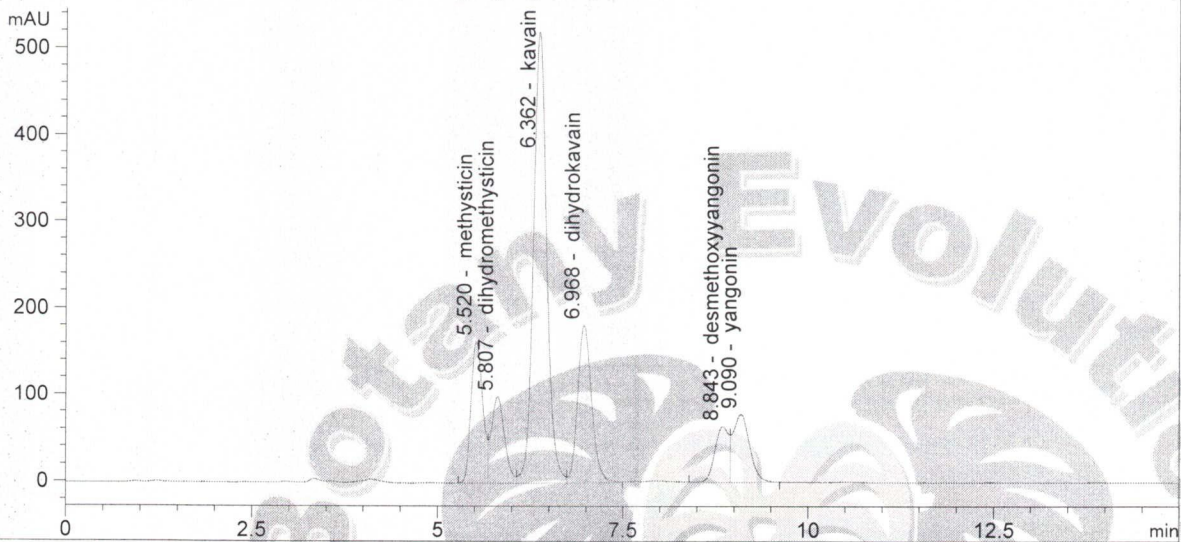
Injection date 5/28/2024

Injection time 8:41:08 PM

Acq. operator KRISTL

Method C:\CHEM32\1\DATA\KAVA_05_28_202->

DAD1 C, Sig=246,10 Ref=500,60 (KAVA_05_28_2024_15MINSTDTESTMETHOD 2024-05-28 16-38-07\012-1201.D)



#	COMPOUND	RET. TIME	AREA	AREA %	AMOUNT
1	methysticin	5.520	1800.107	12.87	0.000
2	dihydromethysticin	5.807	1223.099	8.75	0.000
3	kavain	6.362	6498.090	46.46	0.001
4	dihydrokavain	6.968	2389.640	17.09	0.000
5	desmethoxyyangonin	8.843	832.693	5.95	0.000
6	yangonin	9.090	1241.927	8.88	0.000

5/29/24
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CERTIFICATE OF ANALYSIS

GENERAL INFORMATION

Report Date	5/28/2024	Country of Origin	Solomon Islands
Sample Number	S2120	Country of Processing	United States
Product Name	Chief Lateral Roots	Manufacture Date	Apr-24
Lot Number	SIK2404-CLR5	Best By Date	Apr-27

ITEM	SPECIFICATION	TEST RESULTS	METHOD
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PHYSICAL & CHEMICAL

Identification	Piper methysticum	Complies	HPLC
Appearance	Beige to Yellow Powder	Complies	Organoleptic
Kavalactone Standard	2-17 % Kavalactones	16.80%	HPLC
Kavalactone Profile	Noble	Pass	HPLC
Chemotype	If # 5 is in 1st or 2nd in Abundance	245631	HPLC
K/DHM	> 1.2 for Noble	1.6	Calculation

HEAVY METALS

		Basal	Lateral		
Arsenic (As)	NMT 1,000 (ppb)*	< 10	45	ppb	FDA EAM 4.7
Cadmium (Cd)	NMT 1,000 (ppb)*	907	1050	ppb	FDA EAM 4.7
Lead (Pb)	NMT 1,000 (ppb)*	77.7	221	ppb	FDA EAM 4.7
Mercury (Hg)	NMT 1,000 (ppb)*	< 10	< 10	ppb	FDA EAM 4.7

*Heavy Metals Action Limits Based on Maximum PDE at 5% Kavalactones. Results May Exceed 1,000 ppb action limit with higher kavalactone contents.

MICROBIOLOGICAL

		Basal	Lateral		
AEROBIC PLATE COUNT	NMT 10,000,000 cfu	1,500	250,000	cfu / 10 g	USP 2021
E. COLI	ABSENT (cfu/10g)	Absent	Absent	cfu / 10 g	USP 2022
PSEUDOMONAS AERUGINOSA	ABSENT (cfu/10g)	Absent	Absent	cfu / 10 g	USP 2022
SALMONELLA	ABSENT (cfu/10g)	Absent	Absent	cfu / 10 g	USP 2022
STAPHYLOCOCCUS AUREUS	ABSENT (cfu/10g)	Absent	Absent	cfu / 10 g	USP 2022
YEAST	NMT 100,000 cfu (Combined)	890	5,900,000	cfu / 10 g	
MOLD	NMT 100,000 cfu (Combined)	20	20	cfu / 10 g	USP 2021
TOTAL YEAST & MOLD	NMT 100,000 cfu (Combined)	910	5900020	cfu / 10 g	

cfu/g = Colony Forming Units Per Gram NMT = No More Than PDE = Permitted Daily Exposure PPB = Parts Per Billion

Analysis Performed by a Third-Party Laboratory

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Completed By:  Title: Manager Date: 05/30/2024