Botany Evolution LLC
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CERTIFICATE OF ANALYSIS

GENERAL INFORMATION

Report Date	12/17/2024	**Country of Origin**	Vanuatu
Sample Number	S2191	**Country of Processing**	USA
Product Name	Lateral Roots	**Manufacture Date**	Dec-24
Lot Number	VSSC2411-LR12	**Best By Date**	Dec-27

ITEM	SPECIFICATION	TEST RESULTS	METHOD
PHYSICAL & CHEMICAL			
Identification	**Piper methysticum**	**Complies**	**HPLC**
Appearance	**Beige to Yellow Powder**	**Complies**	**Organoleptic**
Kavalactone Standard	**2-17 % Kavalactones**	11.45%	**HPLC**
Kavalactone Profile	**Noble**	Pass	**HPLC**
Chemotype	**If # 5 is in 1st or 2nd in Abundance**	245361	**HPLC**
K/DHM	**> 1.2 for Noble**	2.0	**Calculation**

HEAVY METALS

		Results		
Arsenic (As)	NMT 1,000 (ppb)*	64.7	ppb	FDA EAM 4.7
Cadmium (Cd)	NMT 1,000 (ppb)*	369	ppb	FDA EAM 4.7
Lead (Pb)	NMT 1,000 (ppb)*	79.8	ppb	FDA EAM 4.7
Mercury (Hg)	NMT 1,000 (ppb)*	< 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

		Results		
AEROBIC PLATE COUNT	NMT 10,000,000 cfu	86,000	cfu / 10 g	USP 2021
E. COLI	ABSENT (cfu/10g)	Absent	cfu / 10 g	USP 2022
PSEUDOMONAS AERUGINOSA	ABSENT (cfu/10g)	Absent	cfu / 10 g	USP 62
SALMONELLA	ABSENT (cfu/10g)	Absent	cfu / 10 g	USP 2022
STAPHYLOCOCCUS AUREUS	ABSENT (cfu/10g)	Absent	cfu / 10 g	USP 2022
YEAST	NMT 100,000 cfu (Combined)	960	cfu / 10 g	USP 2021
MOLD		420	cfu / 10 g	
TOTAL YEAST & MOLD	NMT 100,000 cfu (Combined)	1380	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

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.

Completed By: Tony Sakk Title: Manager Signature: 12/18/24

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Certificate Of Analysis

Sample Identification Information

Date of Analysis 12/17/2024
Sample: S2191
Product Name LATERAL ROOTS
Lot# VSSC2411-LR12

Country of Origin VANUATU
Country of Processing USA
Manufacture Date Nov-24
Best By Date Nov-27

General Product Specifications

Product Species Piper Methysticum
Part Used Root

Common Names Kava kava, Awa, Yagona
Appearance Yellow, Brown, beige powder

Analyzed Characteristics	Specification	Result	Test Method
Standardization	2-17% Kavalactones	11.45%	HPLC
Identification	Complies by HPLC	Conform	HPLC
Kavalactone Profile	Noble	PASS	HPLC
Mesh Size	60-30	60	Sieve
Color	Beige to Yellow	Pass	Visual
Odor		Pass	Organoleptic
Taste		Pass	Organoleptic
Chemotype		245361	HPLC
K/DHM		2.0	Calculation

Kavalactones	Code	Peaks Ref. (elution order)	Correction Factor	Area *	Area %	Corrected Kavalactones	Chemotype Identifier
Standard Kavain	K			2472.728			
Methysticin	M	1	2.21	1094.537	10.69%	1.38%	6
Dihydromethysticin	DHM	2	3.38	777.698	7.59%	1.50%	5
Kavain	K	3	1	5302.302	51.77%	3.02%	4
Dihydrokavain	DHK	4	3.48	1568.418	15.31%	3.11%	2
Desmethoxyyangonin	DMY	5	2.52	661.726	6.46%	0.95%	1
Yangonin	Y	6	3.12	837.846	8.18%	1.49%	3
Kavalactones			**Total:**	**10242.527**	**100.00%**	**11.45%**	**245361**

*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.

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Chemist Mistl Youngs Date 12/18/24

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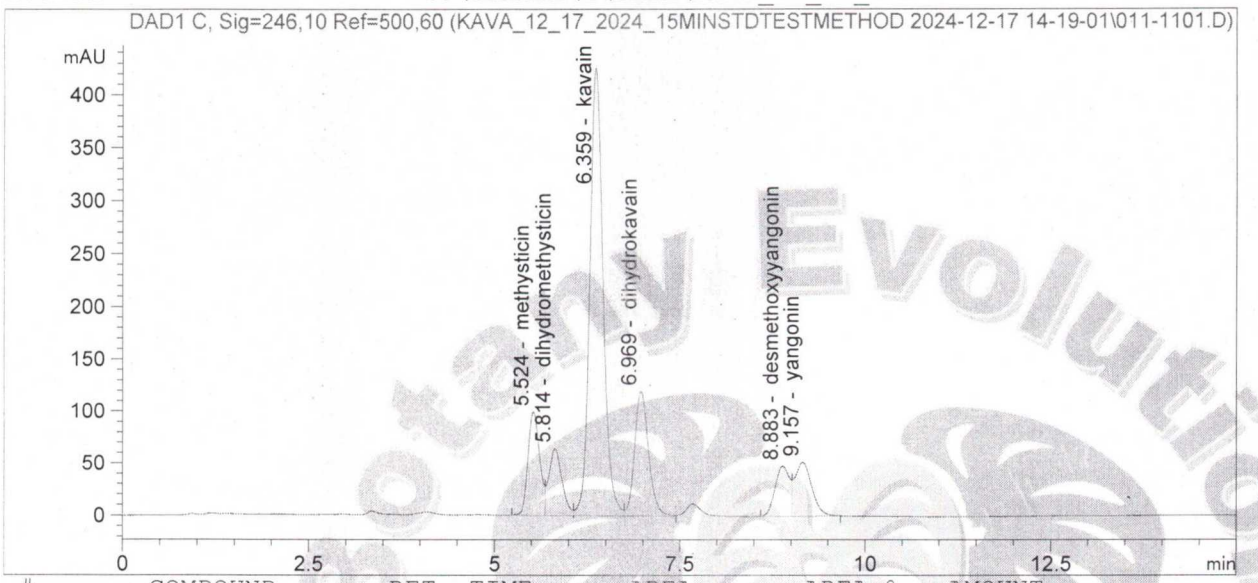
Kavalactone Analysis

SAMPLE S2191
Vial 11

0.75604g/50mL

wavelength 246 nm
C:\CHEM32\1\DATA\KAVA_12_17_2024_15MINSTDTESTMETHOD 2024-12-17 14-19-01\01->
SEQUENCE C:\CHEM32\1\DATA\KAVA_12_17_2024_ ->
Injection date 12/17/2024
Injection time 6:05:46 PM
Acq. operator KRISTL
Method C:\CHEM32\1\DATA\KAVA_12_17_202->



#	COMPOUND	RET. TIME	AREA	AREA %	AMOUNT
1	methysticin	5.524	1094.537	10.69	0.000
2	dihydromethysticin	5.814	777.698	7.59	0.000
3	kavain	6.359	5302.302	51.77	0.000
4	dihydrokavain	6.969	1568.418	15.31	0.000
5	desmethoxyyangonin	8.883	661.726	6.46	0.000
6	yangonin	9.157	837.846	8.18	0.000

12/18/24