Botany Evolution LLC
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CERTIFICATE OF ANALYSIS

GENERAL INFORMATION

Report Date	6/13/2024	**Country of Origin**	Vanuatu
Sample Number	S2130	**Country of Processing**	USA
Product Name	Basal Roots	**Manufacture Date**	Feb-24
Lot Number	VSSC2402-BR6	**Best By Date**	Feb-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	5.24%	HPLC
Kavalactone Profile	Noble	Pass	HPLC
Chemotype	If # 5 is in 1st or 2nd in Abundance	243561	HPLC
K/DHM	> 1.2 for Noble	1.9	Calculation

HEAVY METALS

		Basal	Lateral		
Arsenic (As)	NMT 1,000 (ppb)*	< 10	5.5	ppb	FDA EAM 4.7
Cadmium (Cd)	NMT 1,000 (ppb)*	145	176	ppb	FDA EAM 4.7
Lead (Pb)	NMT 1,000 (ppb)*	14.9	108	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	240	17,000	cfu / 10 g	USP 61
E. COLI	ABSENT (cfu/10g)	Absent		cfu / 10 g	USP 62
PSEUDOMONAS AERUGINOSA	ABSENT (cfu/10g)	Absent		cfu / 10 g	USP 62
SALMONELLA	ABSENT (cfu/10g)	Absent		cfu / 10 g	USP 62
STAPHYLOCOCCUS AUREUS	ABSENT (cfu/10g)	Absent		cfu / 10 g	USP 62
YEAST	NMT 100,000 cfu (Combined)	80	800	cfu / 10 g	USP 2021
MOLD		80	1,000	cfu / 10 g	
TOTAL YEAST & MOLD	NMT 100,000 cfu (Combined)	160	1,800	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.

Authorized By (Name / Title): Tony Saleh Manager Signature:

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321-802-4583

Certificate Of Analysis

Sample Identification Information

Date of Analysis 6/13/2024
Sample: S2130
Product Name BASAL ROOT
Lot# VSSC2402-BR6

Country of Origin VANUATU
Country of Processing USA
Manufacture Date Feb-24
Best By Date Feb-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	5.24%	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		243561	HPLC
K/DHM		1.9	Calculation

Kavalactones	Code	Peaks Ref. (elution order)	Correction Factor	Area *	Area %	Corrected Kavalactones	Chemotype Identifier
Standard Kavain	K			2369			
Methysticin	M	1	2.21	305.896	6.97%	0.40%	6
Dihydromethysticin	DHM	2	3.38	356.813	8.14%	0.71%	5
Kavain	K	3	1	2255.159	51.42%	1.33%	4
Dihydrokavain	DHK	4	3.48	847.113	19.32%	1.74%	2
Desmethoxyyangonin	DMY	5	2.52	221.979	5.06%	0.33%	1
Yangonin	Y	6	3.12	398.657	9.09%	0.73%	3
Kavalactones			**Total:**	**4385.617**	**100.00%**	**5.24%**	**243561**

*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 Mirtil Youngs Date 6/14/24

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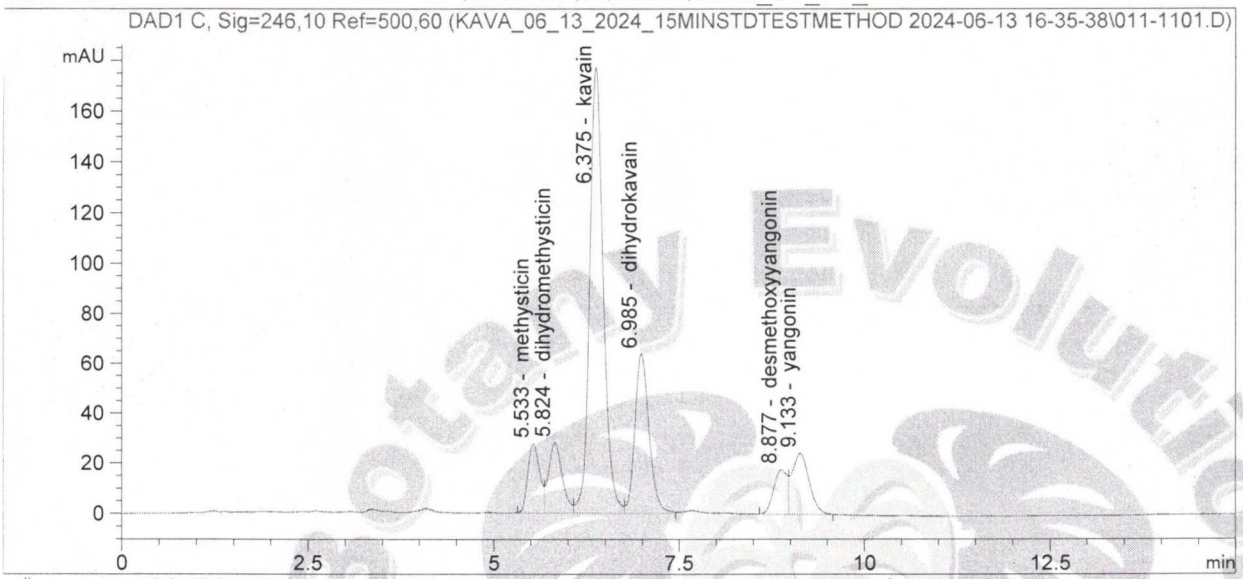
Kavalactone Analysis

SAMPLE S2130
Vial 11

0.75023g/50mL

wavelength 246 nm
C:\CHEM32\1\DATA\KAVA_06_13_2024_15MINSTDTESTMETHOD 2024-06-13 16-35-38\01->
SEQUENCE C:\CHEM32\1\DATA\KAVA_06_13_2024_ ->
Injection date 6/13/2024
Injection time 8:22:15 PM
Acq. operator KRISTL
Method C:\CHEM32\1\DATA\KAVA_06_13_202->



#	COMPOUND	RET. TIME	AREA	AREA %	AMOUNT
1	methysticin	5.533	305.896	6.97	0.000
2	dihydromethysticin	5.824	356.813	8.14	0.000
3	kavain	6.375	2255.159	51.42	0.000
4	dihydrokavain	6.985	847.113	19.32	0.000
5	desmethoxyyangonin	8.877	221.979	5.06	0.000
6	yangonin	9.133	398.657	9.09	0.000