Botany Evolution LLC

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CERTIFICATE OF ANALYSIS

GENERAL INFORMATION

Report Date	3/22/2024	**Country of Origin**	Vanuatu
Sample Number	S2080	**Country of Processing**	USA
Product Name	Premium Roots	**Manufacture Date**	Jan-24
Lot Number	VPS2401-PR2	**Best By Date**	Jan-27

PHYSICAL & CHEMICAL

ITEM	SPECIFICATION	TEST RESULTS	METHOD
Identification	**Piper methysticum**	**Complies**	**HPLC**
Appearance	**Beige to Yellow Powder**	**Complies**	**Organoleptic**
Kavalactone Standard	**2-17 % Kavalactones**	10.07%	**HPLC**
Kavalactone Profile	**Noble**	Pass	**HPLC**
Chemotype	**If # 5 is in 1st or 2nd in Abundance**	423165	**HPLC**
K/DHM	**> 1.2 for Noble**	6	**Calculation**

HEAVY METALS

		Basal	Lateral		
Arsenic (As)	**NMT 1,000 (ppb)***	21.1	438	ppb	**FDA EAM 4.7**
Cadmium (Cd)	**NMT 1,000 (ppb)***	233	1,030	ppb	**FDA EAM 4.7**
Lead (Pb)	**NMT 1,000 (ppb)***	56.6	177	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**	15,000	34,000	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 2022**
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)**	50	4,800	cfu / 10 g	
MOLD		10	800	cfu / 10 g	**USP 2021**
TOTAL YEAST & MOLD	**NMT 100,000 cfu (Combined)**	60	5,600	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 Sabeh / Manager Signature: Tony Sabeh

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Certificate Of Analysis

Sample Identification Information

Date of Analysis	3/22/2024	**Country of Origin**	VANUATU
Sample:	S2080	**Country of Processing**	USA
Product Name	PREMIUM ROOTS	**Manufacture Date**	Jan-24
Lot#	VPS2401-PR2	**Best By Date**	Jan-27

General Product Specifications

Product Species	Piper Methysticum	**Common Names**	Kava kava, Awa, Yagona
Part Used	Root	**Appearance**	Yellow, Brown, beige powder

Analyzed Characteristics	Specification	Result	Test Method
Standardization	2-17% Kavalactones	10.07%	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		423165	HPLC
K/DHM		6.0	Calculation

Kavalactones	Code	Peaks Ref. (elution order)	Correction Factor	Area *	Area %	Corrected Kavalactones	Chemotype Identifier
Standard Kavain	K			2371			
Methysticin	M	1	2.21	604.528	5.71%	0.74%	6
Dihydromethysticin	DHM	2	3.38	337.976	3.19%	0.64%	5
Kavain	K	3	1	6871.07	64.85%	3.82%	4
Dihydrokavain	DHK	4	3.48	1357.268	12.81%	2.63%	2
Desmethoxyyangonin	DMY	5	2.52	704.243	6.65%	0.99%	1
Yangonin	Y	6	3.12	720.626	6.80%	1.25%	3
Kavalactones			**Total:**	**10595.711**	**100.00%**	**10.07%**	**423165**

*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 Heidi Young Date 3/25/24

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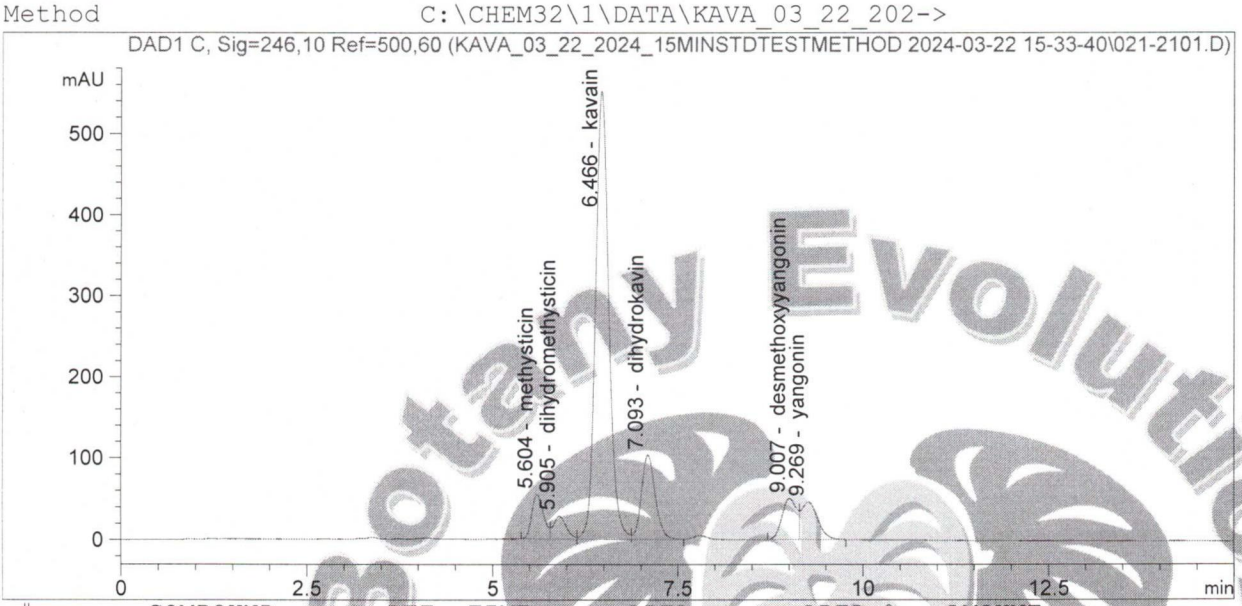
Kavalactone Analysis

SAMPLE S2080
Vial 21

0.75499g/50mL

wavelength 246 nm
C:\CHEM32\1\DATA\KAVA_03_22_2024_15MINSTDTESTMETHOD 2024-03-22 15-33-40\02->
SEQUENCE C:\CHEM32\1\DATA\KAVA_03_22_2024_ ->
Injection date 3/22/2024
Injection time 10:02:41 PM
Acq. operator KRISTL
Method C:\CHEM32\1\DATA\KAVA_03_22_202->



#	COMPOUND	RET. TIME	AREA	AREA %	AMOUNT
1	methysticin	5.604	604.528	5.71	0.000
2	dihydromethysticin	5.905	337.976	3.19	0.000
3	kavain	6.466	6871.070	64.85	0.001
4	dihydrokavin	7.093	1357.268	12.81	0.000
5	desmethoxyyangonin	9.007	704.243	6.65	0.000
6	yangonin	9.269	720.626	6.80	0.000

3/25/24