Botany Evolution LLC

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CERTIFICATE OF ANALYSIS

GENERAL INFORMATION

Report Date	30-Sep	**Country of Origin**	Vanuatu
Sample Number	S2182	**Country of Processing**	USA
Product Name	Lateral Roots	**Manufacture Date**	Aug-24
Lot Number	VSSC2408-TR9	**Best By Date**	Aug-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**	11.72%	**HPLC**
Kavalactone Profile	**Noble**	Pass	**HPLC**
Chemotype	**If # 5 is in 1st or 2nd in Abundance**	24361	**HPLC**
K/DHM	**> 1.2 for Noble**	1.9	**Calculation**

HEAVY METALS

		Results		
Arsenic (As)	**NMT 1,000 (ppb)***	77.7	ppb	**FDA EAM 4.7**
Cadmium (Cd)	**NMT 1,000 (ppb)***	916	ppb	**FDA EAM 4.7**
Lead (Pb)	**NMT 1,000 (ppb)***	114	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**	250,000	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)**	160	cfu / 10 g	
MOLD		28,000	cfu / 10 g	**USP 2021**
TOTAL YEAST & MOLD	**NMT 100,000 cfu (Combined)**	28,160	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:

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321-802-4583

Certificate Of Analysis

Sample Identification Information

Date of Analysis 9/30/2024
Sample: S2182
Product Name LATERAL ROOTS
Lot# VSSC-2408-LR9

Country of Origin VANUATU
Country of Processing USA
Manufacture Date Aug-24
Best By Date Aug-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	11.72%	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		1.9	Calculation

Kavalactones	Code	Peaks Ref. (elution order)	Correction Factor	Area *	Area %	Corrected Kavalactones	Chemotype Identifier
Standard Kavain	K			2410.878			
Methysticin	M	1	2.21	1066.703	10.34%	1.35%	6
Dihydromethysticin	DHM	2	3.38	827.267	8.02%	1.603%	5
Kavain	K	3	1	5270.202	51.09%	3.02%	4
Dihydrokavain	DHK	4	3.48	1587.857	15.39%	3.17%	2
Desmethoxyyangonin	DMY	5	2.52	669.534	6.49%	0.97%	1
Yangonin	Y	6	3.12	894.879	8.67%	1.601%	3
Kavalactones			**Total:**	**10316.442**	**100.00%**	**11.72%**	**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 Kristel Young Date 10/2/24

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Kavalactone Analysis

SAMPLE S2182
Vial 11

.75802g/50mL

avelength 246 nm
:\CHEM32\1\DATA\KAVA_09_30_2024_15MINSTDTESTMETHOD 2024-09-30 14-01-18\01->
EQUENCE C:\CHEM32\1\DATA\KAVA_09_30_2024_ ->
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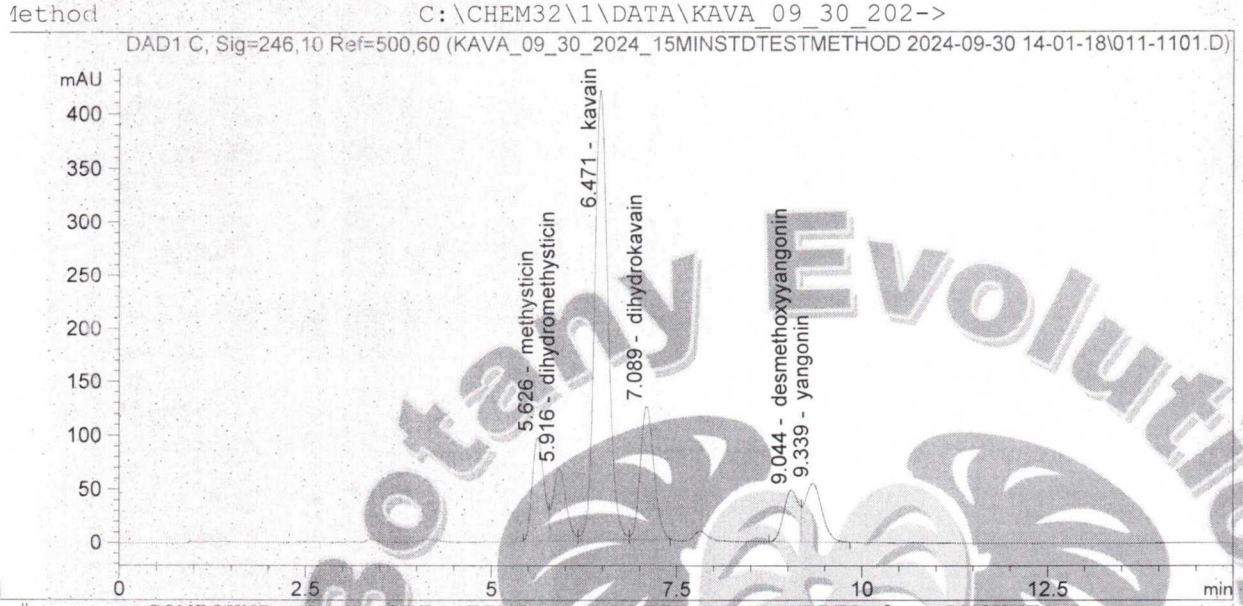

#	COMPOUND	RET. TIME	AREA	AREA %	AMOUNT
1	methysticin	5.626	1066.703	10.34	0.000
2	dihydromethysticin	5.916	827.267	8.02	0.000
3	kavain	6.471	5270.202	51.09	0.000
4	dihydrokavain	7.089	1587.857	15.39	0.000
5	desmethoxyyangonin	9.044	669.534	6.49	0.000
6	yangonin	9.339	894.879	8.67	0.000

10/2/24