

# CERTIFICATE OF ANALYSIS

**GENERAL INFORMATION**

Report Date	2/5/2025	Country of Origin	Tonga
Sample Number	S2222	Country of Processing	USA
Product Name	Lateral Roots	Manufacture Date	Feb-25
Lot Number	TAT2412LR2	Best By Date	Feb-28

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	9.82%	HPLC
Kavalactone Profile	Noble	Pass	HPLC
Chemotype	If # 5 is in 1st or 2nd in Abundance	432651	HPLC
K/DHM	> 1.2 for Noble	1.8	Calculation

**HEAVY METALS**

		Results	
Arsenic (As)	NMT 1,000 (ppb)*	128 ppb	FDA EAM 4.7
Cadmium (Cd)	NMT 1,000 (ppb)*	536 ppb	FDA EAM 4.7
Lead (Pb)	NMT 1,000 (ppb)*	727 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	
<b>AEROBIC PLATE COUNT</b>	NMT 10,000,000 cfu	64,000 cfu / 10 g	USP 2021
<b>E. COLI</b>	ABSENT (cfu/10g)	Absent cfu / 10 g	USP 2022
<b>PSEUDOMONAS AERUGINOSA</b>	ABSENT (cfu/10g)	Absent cfu / 10 g	USP 62
<b>SALMONELLA</b>	ABSENT (cfu/10g)	Absent cfu / 10 g	USP 2022
<b>STAPHYLOCOCCUS AUREUS</b>	ABSENT (cfu/10g)	Absent cfu / 10 g	USP 2022
<b>YEAST</b>	NMT 100,000 cfu (Combined)	64,000 cfu / 10 g	
<b>MOLD</b>	NMT 100,000 cfu (Combined)	400 cfu / 10 g	USP 2021
<b>TOTAL YEAST &amp; MOLD</b>	NMT 100,000 cfu (Combined)	64400 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 Sabeh      Title: Manager      Signature: Tony Sabeh

**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> 2/5/2025	<u>Country of Origin</u> TONGA
<u>Sample:</u> S2222	<u>Country of Processing</u> USA
<u>Product Name</u> LATERAL ROOTS	<u>Manufacture Date</u> Feb-25
<u>Lot#</u> TAT2412LR2	<u>Best By Date</u> Feb-28

**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	9.82%	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>		432651	HPLC
<u>K/DHM</u>	TUDEI < 1.2 > NOBLE	1.8	Calculation

Kavalactones	Code	Peaks Ref. (elution order)	Correction Factor	Area *	Area %	Corrected Kavalactones	Chemotype Identifier
Standard Kavain	K			2353.051			
Methysticin	M	1	2.21	1271.354	15.32%	1.66%	<b>6</b>
Dihydromethysticin	DHM	2	3.38	636.577	7.67%	1.27%	<b>5</b>
Kavain	K	3	1	3877	46.73%	2.29%	<b>4</b>
Dihydrokavain	DHK	4	3.48	861.857	10.39%	1.77%	<b>2</b>
Desmethoxyyangonin	DMY	5	2.52	597.144	7.20%	0.89%	<b>1</b>
Yangonin	Y	6	3.12	1052.363	12.68%	1.94%	<b>3</b>
<b>Kavalactones</b>			<b>Total:</b>	<b>8296.295</b>	<b>100.00%</b>	<b>9.82%</b>	<b>432651</b>

\*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 Nuste Youngs Date 2/11/25

SAMPLE S2222  
Vial 15

0.75436g/50mL

wavelength 246 nm

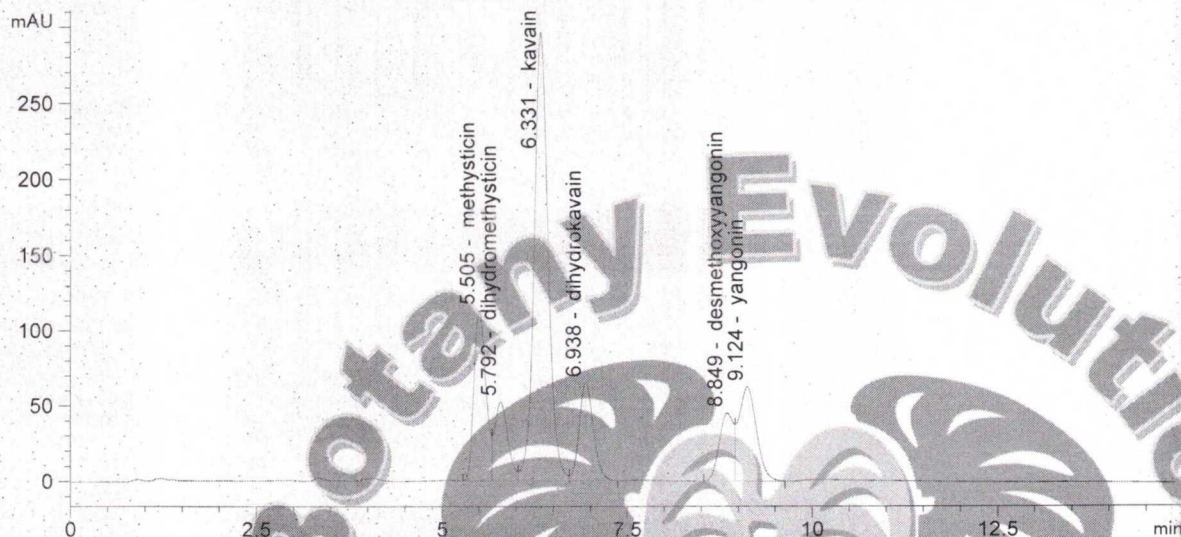
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SEQUENCE C:\CHEM32\1\DATA\KAVA\_02\_05\_2025\_ ->

Injection date 2/5/2025  
Injection time 9:08:25 PM

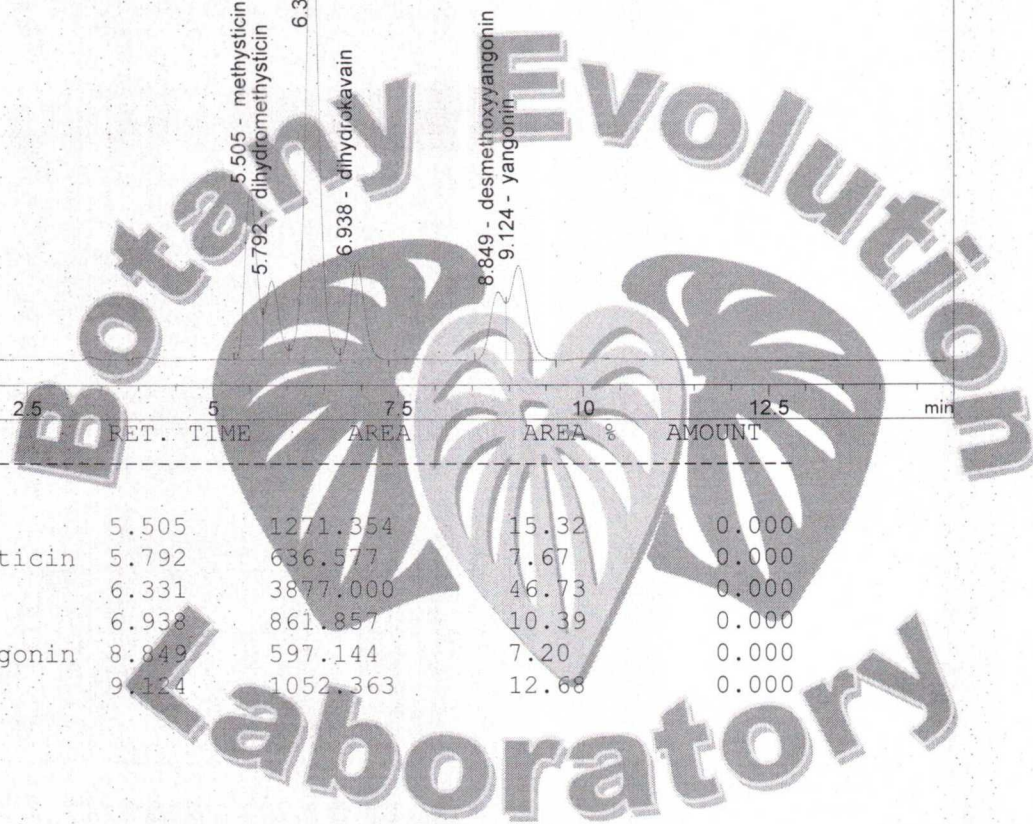
Acq. operator KRISTL

Method C:\CHEM32\1\DATA\KAVA\_02\_05\_202->

DAD1 C, Sig=246,10 Ref=500,60 (KAVA\_02\_05\_2025\_15MINSTDTESTMETHOD 2025-02-05 16-17-08\015-1501.D)



#	COMPOUND	RET. TIME	AREA	AREA %	AMOUNT
1	methysticin	5.505	1271.354	15.32	0.000
2	dihydromethysticin	5.792	636.577	7.67	0.000
3	kavain	6.331	3877.000	46.73	0.000
4	dihydrokavain	6.938	861.857	10.39	0.000
5	desmethoxyyangonin	8.849	597.144	7.20	0.000
6	yangonin	9.124	1052.363	12.68	0.000



2/11/25  
J