

CERTIFICATE OF ANALYSIS

GENERAL INFORMATION

Report Date	3/22/2024	Country of Origin	Vanuatu
Sample Number	S2073	Country of Processing	China
Product Name	30% Kavalactone Extract	Manufacture Date	9/10/2023
Lot Number	CJ2401KE30	Best By Date	9/9/2026

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	31.11%	HPLC
Kavalactone Profile	Noble	Pass	HPLC
Chemotype	If # 5 is in 1st or 2nd in Abundance	241356	HPLC
K/DHM	> 1.2 for Noble	2.3	Calculation

HEAVY METALS

		Results	
Arsenic (As)	NMT 1,000 (ppb)*	37.7	ppb FDA EAM 4.7
Cadmium (Cd)	NMT 1,000 (ppb)*	2.7	ppb FDA EAM 4.7
Lead (Pb)	NMT 1,000 (ppb)*	60	ppb FDA EAM 4.7
Mercury (Hg)	NMT 1,000 (ppb)*	43.1	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	10	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)	5	cfu / 10 g
MOLD		5	cfu / 10 g USP 2021
TOTAL YEAST & MOLD	NMT 100,000 cfu (Combined)	10	cfu / 10 g

cfu/g = Colony Forming Units Per Gram NMT = No More Than PDE = Permitted Daily Exposure PPB = Parts Per Billion

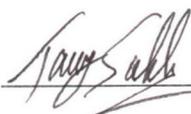
Analysis Performed by a Third-Party Laboratory

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: 

Title: Manager

Date: 3/26/2024

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> 3/22/2024	<u>Country of Origin</u> VANUATU
<u>Sample:</u> S2073 A	<u>Country of Processing</u> CHINA
<u>Product Name</u> KAVA EXTRACT 30%	<u>Manufacture Date</u> 09/10/23
<u>Batch #</u> CJ2401KE30	<u>Best By Date</u> 09/09/26

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 POWDER

Analyzed Characteristics

Specification

Result

Test Method

<u>Standardization</u>	20-90% Kavalactones	31.11%	HPLC
<u>Identification</u>	Complies by HPLC	Conform	HPLC
<u>Kavalactone Profile</u>	Noble	PASS	HPLC
<u>Mesh Size</u>	60-30	30	Sieve
<u>Color</u>	Beige to Yellow	Pass	Visual
<u>Odor</u>		Pass	Organoleptic
<u>Taste</u>		Pass	Organoleptic
<u>Chemotype</u>		241356	HPLC
<u>K/DHM</u>		2.3	Calculation

Kavalactones	Code	Peaks Ref. (elution order)	Correction Factor	Area *	Area %	Corrected Kavalactones	Chemotype Identifier
Standard Kavain	K			12586			
Methysticin	M	1	2.21	1380.349	7.26%	2.37%	6
Dihydromethysticin	DHM	2	3.38	1157.801	6.09%	3.04%	5
Kavain	K	3	1	8870.657	46.67%	6.88%	4
Dihydrokavain	DHK	4	3.48	4533.165	23.85%	12.24%	2
Desmethoxyyangonin	DMY	5	2.52	1806.22	9.50%	3.53%	1
Yangonin	Y	6	3.12	1260.605	6.63%	3.05%	3
Kavalactones			Total:	19008.797	100.00%	31.11%	241356

*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 Muste Youngs Date 3/25/24

SAMPLE S2073 A
Vial 13

0.51334g/50mL

wavelength 246 nm

C:\CHEM32\1\DATA\KAVA_03_22_2024_15MINSTDTESTMETHOD 2024-03-22 15-33-40\01->
SEQUENCE C:\CHEM32\1\DATA\KAVA_03_22_2024_ ->

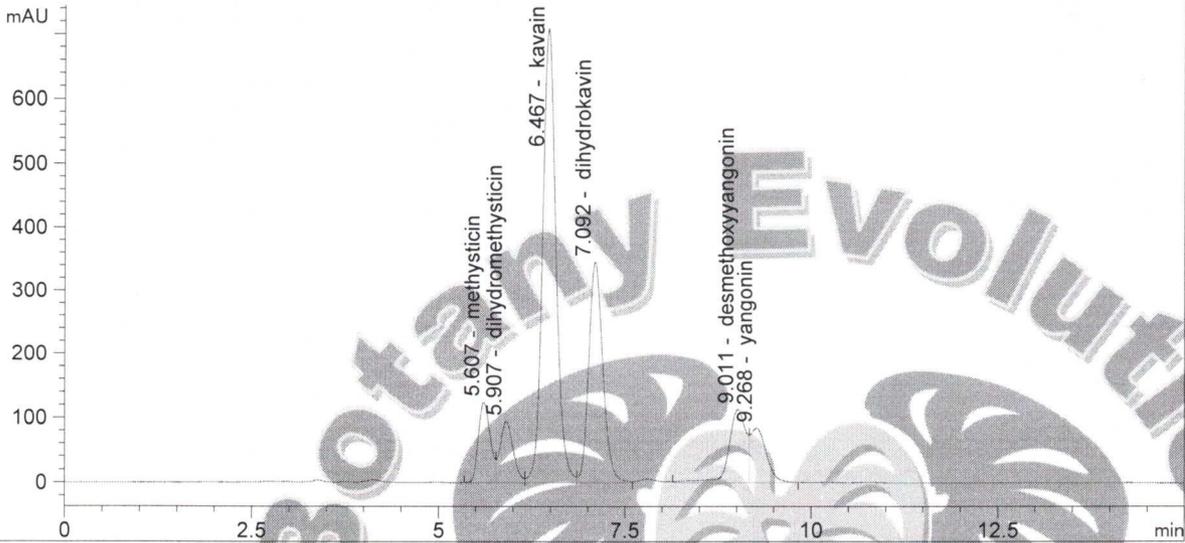
Injection date 3/22/2024

Injection time 7:53:15 PM

Acq. operator KRISTL

Method C:\CHEM32\1\DATA\KAVA_03_22_202->

DAD1 C, Sig=246,10 Ref=500,60 (KAVA_03_22_2024_15MINSTDTESTMETHOD 2024-03-22 15-33-40\013-1301.D)



#	COMPOUND	RET. TIME	AREA	AREA %	AMOUNT
1	methysticin	5.607	1380.349	7.26	0.000
2	dihydromethysticin	5.907	1157.801	6.09	0.000
3	kavain	6.467	8870.657	46.67	0.001
4	dihydrokavin	7.092	4533.165	23.85	0.001
5	desmethoxyyangonin	9.011	1806.220	9.50	0.000
6	yangonin	9.268	1260.605	6.63	0.000

3/25/24
KRISTL