Certificate of Analysis

Sample Name:	Silesse Traditional	**Batch Number & Sample ID:**	B2SB
Description:	Processed kava root	**Analysis Identification Code:**	240924T95
		Plant Morphologist:	Joses Laau
Process/Mix Date:	01/03/2024	**Chromatographer:**	John McGowan
Micro Lab Sampling Date:	01/03/2024	**Microbiologist:**	Ariane Urriza
ASE Processing Date:	24/09/2024	**Sample Preparation Technician:**	Eva David Livo
UHPLC Injection Date:	24/09/2024	**Quality Control Officer:**	Anabel Belen
Date of Report:	**25/09/2024**	**Quality Assurance Manager:**	Dianne Manley

Executive Summary

Total extracted major kavalactones =**5.69%** of sample mass (w/w)

Chemotype = **423651** Moisture Content: **7.10%** (w/w)

Contamination = **Pass** Categorisation = **Noble kava**

K and DHK Ratios

K to DHK: 1.35	DHK to K: 0.74
K to Y: 1.86	DHK to Y: 1.37
K to M: 2.69	DHK to M: 1.99
K to DHM: 3.04	DHK to DHM: 2.25
K to DMY: 3.25	DHK to DMY: 2.40

Chemical Analysis:

Sample Preparation:1.000 g processed kava powder dispersed with silica sand to fill 10 mL Dionex™ ASE™ cell

Extraction method: Accelerated Solvent Extraction (ASE)

Extraction Process Automation: Thermo Scientific Dionex™ ASE™ 350 Accelerated Solvent Extractor

ASE Conditions – **Solvent**: HPLC grade Acetonitrile (ACN), **Temperature**: 60 °C, **Pressure**: 105 Bar, **Pre-incubation**: 5 min,

Static Hold: 20 min, **Rinse Volume**: 150%, **Dilution to Working Range**: 1 part ASE™ filtrate + 9 parts solvent (ACN) to give 1/10

Pre-UHPLC Particulate Exclusion: ASE™ filtrate passed through Dionex™ D28 cellulose filter prior to dilution to working concentration, then passed through 0.22 µm hydrophilic PTFE filter prior to injection

Chromatographic Conditions:

System:	Thermo Scientific Vanquish Horizon Ultra-High-Performance Liquid-Chromatography
Instrument Components:	VF-A10-A Split Sampler, VF-P10-A binary pump, VH-C10-A Column Compartment, and VF-D11-A Diode Array Detector
Column:	200 x 2.1 mm Hypersil GOLD, 1.9 µm particle size
Mobile Phase:	5% isopropanol to 97% isopropanol in water (nonlinear). Total runtime 15.9 minutes
Column Temperature:	60 °C, with active pre-heating **Injection Volume:** 2.00 µL **Organic Modifier**: None
UV Detection:	362 nm (aflatoxin B_1 and B_2 identification), 341 nm (flavokavain and aflatoxin G_1 and G_2 identification), 246 nm (kavalactone identification), and 218 nm (kavalactone and aflatoxin secondary peaks); Peak identification assisted by elution time and spectrum matching. Relative quantification calculations based on channel 3 (246 nm)
Calibration Standards:	Correlation coefficient for all identified compounds is greater than 99.995% on a 20-point calibration curve derived by serial dilution of 1 ampoule of Cerilliant (kavalactones and flavokavains) and 1 ampoule of Ehrenstorfer (aflatoxins) certified analytical reference standards. Analytical balances calibrated with certified class OIML E2 weights with uncertainty +/- 0.000016 g (NATA accredited for compliance with ISO/IEC 17025, by laboratory No.3279)
Instrument Method:	**Software**: Chromeleon 7.2.10 **Program**: 240604 Hypersil iPrOH
Processing Method:	**Software**: Chromeleon 7.3.2 **Program**: 240606 Hypersil iPrOH Pro
Confidence Probability:	Lower = 99.5% Upper = 99.5%

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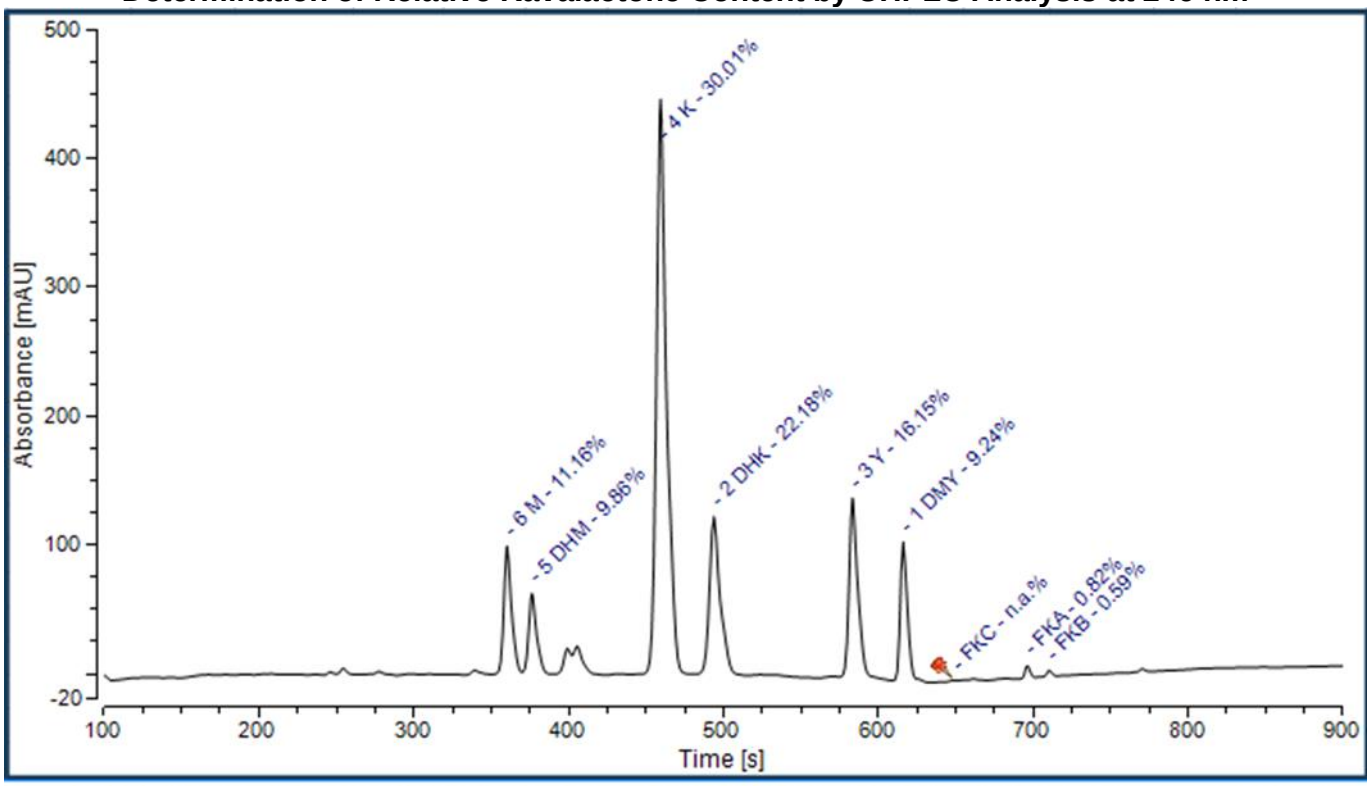
Determination of Relative Kavalactone Content by UHPLC Analysis at 246 nm



Peak labelled percentages represent that compound's abundance relative to the total amount of quantified compounds in the sample

Integration Results

Chem # Name abv	Rel.Amt %	Spectrum Match	Rtn T. min	Rel.Ar %	Rel.Ht %	R^2 %	HV LoD (mg/kg)	Cor.Coef %	Cal. Pts.	Lower Limit	Amount (mg/kg)	Upper Limit	Extracted % of mass
4 K	30.009	999.760	7.656	49.39	44.91	99.997	2.9065	99.998	20	17271	17326	17381	1.733
2 DHK	22.180	999.563	8.229	14.42	12.39	99.998	2.2489	99.999	20	12773	12806	12838	1.281
3 Y	16.151	999.390	9.722	13.16	14.00	99.999	2.0071	99.999	20	9301	9325	9349	0.933
6 M	11.163	999.013	6.003	8.34	9.98	99.998	2.3968	99.999	20	6419	6445	6471	0.645
5 DHM	9.857	993.909	6.271	5.42	6.30	99.998	2.0995	99.999	20	5668	5691	5713	0.569
1 DMY	9.236	999.110	10.267	8.47	10.87	99.998	2.2349	99.999	20	5309	5333	5357	0.533
FKA	0.819	996.952	11.601	0.53	1.02	99.994	0.4032	99.997	20	468	473	477	0.047
FKB	0.586	998.119	11.839	0.24	0.48	99.991	0.4956	99.996	20	333	339	344	0.034
FKC	n.a.	902.906	10.823	0.02	0.05	99.999	0.1742	99.999	20	n.a.	n.a.	n.a.	n.a.
Totals:	100%			100%	100%	**Major Kavalactones Extracted (% of total mass):**							5.693
Flavokavains Extracted (relative %): 1.405						Flavokavains Extracted (% of total mass):							0.08

Peak Results

Peak Name	Peak No.	Purity Match	Ret. T. (S)	Signal to Noise	Peak to Valley	Area mAU*min	Height mAU	Width 50% min	Type	Res (EP)	Asym (EP)	Plates (EP)
4 K	3	1000	459.364	34.9	982.55	56.413	446.295	0.18	BM	3.08	1.33	28248
2 DHK	4	995	493.744	9.6	271.16	16.468	123.168	0.19	MB	8.44	1.35	29885
3 Y	5	999	583.304	152.3	n.a.	15.034	139.097	0.16	BMB*	3.59	1.38	56095
6 M	1	1000	360.204	7.8	87.69	9.521	99.212	0.14	BM	1.85	1.30	27887
5 DHM	2	999	376.284	4.9	55.36	6.192	62.631	0.15	MB	8.43	1.30	29086
1 DMY	6	999	616.004	568.5	n.a.	9.676	108.052	0.14	BMB	4.65	1.32	86227
FKA	8	991	696.044	13.4	n.a.	0.608	10.124	0.10	BMB*	2.50	1.28	231651
FKB	9	991	710.324	24.5	n.a.	0.278	4.761	0.10	BMB*	n.a.	1.20	251273
FKC	7	654	649.384	0.6	n.a.	0.028	0.462	0.10	BMB*^	7.93	0.83	186307

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Summary of Microbial Analysis:

Microbial analyses are carried out in accordance with Forney Enterprises' Quality Assurance Programme. Analyses are performed in our modern, well-equipped, built-for-purpose microbiology laboratory, by experienced staff who are skilled in the art, using aseptic technique, calibrated equipment, and high-quality reagents, and incorporate the use of controls. Any given test may be performed using more than one method, substrate, or growth medium, including (but not limited to) 3M Petrifilm, HyServe Compact Dry plates, traditional and chromogenic agars, and culture-specific broths to validate results. We combine the use of industry standard protocols (such as FDA BAM and AOAC OMA) and proprietary methods developed in-house, however, the results reported are from the most sensitive method used (highest test counts). Forney kava is produced in a closely regulated HACCP certified facility, with continuous environmental monitoring and comprehensive testing throughout the production process. The figures below result from testing the finished product as packaged. Kava powder which does not meet the strictest criteria cannot bear the Forney logo.

Indicator Organism	**Test Results (cfu/g)**
Aerobic Plate Count (TPC)	75,000
Coliform	30
Escherichia coli	None detected
Yeast	590
Mould	≤10
Staphylococcus spp.	None detected
Salmonella spp.	None detected
Listeria spp.	None detected

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