

CERTIFICATE OF ANALYSIS

Name of Customer : DR AHMAD BUKHARY
 Address : School of Biological Sciences, Universiti Sains Malaysia
 11800 USM Gelugor, Pulau Pinang.
 Tel. No. : 012-304 5007
 Sample Description : One (1) sample described as **INSECT FRASS FERTILIZER SPECIES ACHETA DOMESTICUS**
 Sample Ref. No : U0493/21

ANALYSIS RESULTS (As per sample)

Parameter, Unit	Result		Test Method / Equipment / Technique
Nitrogen, % (w/w)	4.28	4.43	Nitrogen: In-house method no. STP/Chem/A03 based on AOAC 20 th Edi. 981.10
Calcium, mg/kg	3012.50	3065.12	Microwave Digestion – AAS
Potassium, mg/kg	16537.84	16498.86	Microwave Digestion - AAS
Magnesium, mg/kg	1906.95	1971.83	Microwave Digestion – AAS
Phosphorus, mg/kg	6634.46	6664.50	Microwave Digestion – MP/AES

Remarks:

- a. Opened / balance samples will be discarded two weeks after issuance of Certificate of Analysis.


NOR AIN SYUHADA ZUHAIMI
 Laboratory Executive
 UNIPEQ SDN BHD (870956-D)

This report refers to the tested sample only. Sampling is not carried out by our organization. All analysis are carried out to the best of our knowledge and ability and our responsibility is limited to the correctness of the result. This report is issued on the understanding that it does relieve parties concerned from their contractual obligations. This report shall not be reproduced except in full without written approval of the laboratory.

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Our Ref : ACL/MIS-OTH 210811
Company : **DR AHMAD BUKHARY BIN AHMAD KHAIR**
School of Biological Sciences
G08 Building, Universiti Sains Malaysia
11800 USM Pulau Pinang

Sample description : Received one (1) samples labelled as Insect Frass Fertilizer Species
Acheta Domesticus

Results of Analysis

Parameter	Unit	Method	Results
pH	-	In House based on APHA 4500 H ⁺ B	8.3
Total Organic Carbon	%w/w	MS678:Pt I to IV:1980	29.0
Total Organic Matter	%w/w	In House	90.5
Sulphur as S	mg/kg	ICP-OES	5,575
C/N Ratio	-	By Calculation	7.4

Note:

"<" denote "Less Than"



MOHD BADRULLAH BIN BUANG
BSc(Hons), LMIC
IKM Registered Chemist : L/2784/8241/18

Certificate of Analysis

Lab Ref No.: **UL2107-A00634**

SN: **RS1723334428404556**

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Noor Azinah Maamin

Chemist & Food Analyst

IKM No. : M/1973/4360/03 Food Analyst No: MJMM 0622

AN1: RA1768315829918756

DR AHMAD BUKHARY BIN AHMAD KHAIR

SCHOOL OF BIOLOGICAL SCIENCE

G08 BUILDING

UNIVERSITI SAINS MALAYSIA

11800 PULAU PINANG

MALAYSIA

Sample Marking: INSECT FRASS FERTILIZER SPECIES ACHETA DOMESTICUS

Sample Description: FERTILIZER

Remarks:

1. *Opened / balance samples will be discarded two weeks after issuance of Certificate of Analysis.*

Test Description	Unit	Result(s)	Test Method/Equipment/Technique
Total Ash	%w/w	10.4	In-house Method No: STP/Chem/A05 based on AOAC 20th Edition: 923.03

– END OF REPORT –

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Our Ref : ACL/MIS-OTH 220308

Company : **DR AHMAD BUKHARY BIN AHMAD KHAIR**
School of Biological Sciences
G08 Building, Universiti Sains Malaysia
11800 USM Pulau Pinang

Sample description : Received one (1) samples labelled as **Fertilizer**
Marking: Insect Frass Species Acheta Domesticus

Results of Analysis

Parameter	Unit	Method	Results
Cation Exchange Capacity	meq/100g	MS 678: Pt. I to V :1980	20.0
Conductivity	μS/cm	MS 678: Part VI to IX :1980	6,580

*Note:**"<" denote "Less Than"*

MOHD BADRULLAH BIN BUANG
BSc(Hons), MMIC
IKM Registered Chemist : M/5949/8241/18/22

Our Ref : ACL/MIS-OTH 220287

Company : **DR AHMAD BUKHARY BIN AHMAD KHAIR**
School of Biological Sciences
G08 Building, Universiti Sains Malaysia
11800 USM Pulau Pinang

Sample description : Received one (1) samples labelled as **Insect Frass Fertilizer Species Acheta Domesticus**

Results of Analysis

Parameter	Unit	Method	Results
Ammonium	mg/kg	Ion Chromatography	10293.7
Nitrate	mg/kg	Ion Chromatography	0.03
Nitrite	mg/kg	Ion Chromatography	0.01

Note:

"ND" denotes "Not Detected"

"<" denotes "Less Than"



MOHD BADRULLAH BIN BUANG
BSc(Hons), MMIC
IKM Registered Chemist : M/5949/8241/18/22

Our Ref : ACL/MIS-OTH 220347

Company : **DR AHMAD BUKHARY BIN AHMAD KHAIR**
School of Biological Sciences
G08 Building, Universiti Sains Malaysia
11800 USM Pulau Pinang

Sample description : Received one (1) samples labelled as **Fertilizer**
Marking: Insect Frass Species Acheta Domesticus

Results of Analysis

Parameter	Unit	Method	Results
Crude Fiber	% w/w	MS 1414 (1997)	2.8



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