

**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 HERMETIA  
ILLUCENS*  
Sample Ref. No : U0494/21

**ANALYSIS RESULTS**

(As per sample)

Parameter, Unit	Result		Test Method / Equipment / Technique
Nitrogen, % (w/w)	3.03	3.05	Nitrogen: In-house method no. STP/Chem/A03 based on AOAC 20 <sup>th</sup> Edi. 981.10
Calcium, mg/kg	3407.72	3451.78	Microwave Digestion – AAS
Potassium, mg/kg	66129.03	66148.99	Microwave Digestion - AAS
Magnesium, mg/kg	2555.20	2501.83	Microwave Digestion – AAS
Phosphorus, mg/kg	11174.76	11302.29	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 210812/A  
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  
Hermetia Illucens

**Results of Analysis**

Parameter	Unit	Method	Results
pH	-	In House based on APHA 4500 H <sup>+</sup> B	9.1
Total Organic Carbon	%w/w	MS678:Pt I to IV:1980	25.3
Total Organic Matter	%w/w	In House	79.7
Sulphur as S	mg/kg	ICP-OES	6,100
C/N Ratio	-	By Calculation	10.2

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-A00635**

SN: **RS9895076130887385**

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Noor Azinah Maamin

Chemist & Food Analyst

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

AN1: RA2248254872938105

**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 HERMETIA ILLUCENS

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	22.9	In-house Method No: STP/Chem/A05 based on AOAC 20th Edition: 923.03

### – END OF REPORT –

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 results. This report is issued on the understanding that it does not relieve parties concerned from their contractual obligations. This report shall not be reproduced except in full without written approval of the laboratory



Our Ref : ACL/MIS-OTH 220309

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 Hermetia Illucens**

**Results of Analysis**

Parameter	Unit	Method	Results
Cation Exchange Capacity	meq/100g	MS 678: Pt. I to V :1980	32.9
Conductivity	μS/cm	MS 678: Part VI to IX :1980	7,940

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

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

Our Ref : ACL/MIS-OTH 220288

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**  
**Hermetia Illucens**


**Results of Analysis**

Parameter	Unit	Method	Results
Ammonium	mg/kg	Ion Chromatography	4003.3
Nitrate	mg/kg	Ion Chromatography	0.1
Nitrite	mg/kg	Ion Chromatography	0.04

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 220348

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 Hermetia Illucens**

**Results of Analysis**

Parameter	Unit	Method	Results
Crude Fiber	% w/w	MS 1414 (1997)	22.2

Note:

"<" denote "Less Than"

  
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