

Our Ref : ACL/MIS-OTH 220160

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 **Postharvest Soil**
Marking: USM Penang L14-Building, Plant House - Insect Frass Species
Hermetia Illucens

Results of Analysis

Parameter	Unit	Method	Results
pH	-	In House based on APHA 4500 H ⁺ B	9.2
Exchangeable Potassium	mg/L	MS 678: Pt. I to V : 1980	590.0
Exchangeable Calcium	mg/L	MS 678: Pt. I to V : 1980	100.0
Exchangeable Magnesium	mg/L	MS 678: Pt. I to V : 1980	73.0
Cation Exchange Capacity	meq/100g	MS 678: Pt. I to V : 1980	7.0
Total Organic Carbon	%w/w	MS678:Pt I to IV:1980	6.1
Total Organic Matter	%w/w	In House	35.6

Note:

"<" denote "Less Than"



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


Our Ref : ACL/MIS-OTH 220160/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 **Postharvest Soil**
Marking: USM Penang L14-Building, Plant House - Insect Frass Species
Hermetia Illucens

Results of Analysis

Parameter	Unit	Method	Results
Total Nitrogen	%w/w	MS 1120 (2004)	0.63
Available Phosphorus	mg/kg	Bray Extraction	76.3

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

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


Our Ref : ACL/MIS-OTH 220160/B

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 **Postharvest Soil**
Marking: USM Penang L14-Building, Plant House - Insect Frass Species
Hermetia Illucens

Results of Analysis

Parameter	Unit	Method	Results
C/N Ratio	-	In-House	9.7

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

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


Our Ref : ACL/MIS-OTH 220160/C

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 **Postharvest Soil**
Marking: USM Penang L14-Building, Plant House - Insect Frass Species
Hermetia Illucens

Results of Analysis

Parameter	Unit	Method	Results
Soil Conductivity	µS/cm	MS 678:Part VI to IX:1980	1,646

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

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

Our Ref : ACL/MIS-OTH 220332

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 **Postharvest Soil Marking:**
USM Penang L14-Building, Plant House -Insect Frass Species Hermetia
Illucens

Results of Analysis

Parameter	Unit	Method	Results
Total Potassium as K	mg/kg	ICP-OES	6,960.0



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

Our Ref : ACL/MIS-OTH 220339

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 **Postharvest Soil Marking:**
USM Penang L14-Building, Plant House -Insect Frass Species Hermetia
Illucens

Results of Analysis

Parameter	Unit	Method	Results
Total Sulphur as S	mg/kg	ICP-OES	1,820.0



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

Our Ref : ACL/MIS-OTH 220294

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 **Postharvest Soil Marking:
USM Penang L14-Building, Plant House -Insect Frass Species Hermetia
Illucens**

Results of Analysis

Parameter	Unit	Method	Results
Total Phosphorus	mg/kg	ICP-OES	3505.0
Ammonium	mg/kg	Ion Chromatography	697.4
Nitrate	mg/kg	Ion Chromatography	0.02
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 220349

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 **Postharvest Soil Marking:
USM Penang L14-Building, Plant House -Insect Frass Species Hermetia
Illucens**

Results of Analysis

Parameter	Unit	Method	Results
Sulphate as SO ₄	% w/w	MS 678 : Part VI to IX:1980	1.3
Sulphide as S ₂ -	mg/kg	APHA 4500-S ₂ -D	< 0.5
Phosphate as PO ₄	mg/kg	Spectrometry	329.3

Note:

"<" denotes "Less Than"



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

Our Ref : ACL/MIS-OTH 220354

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 **Postharvest Soil Marking :**
USM Penang L14-Building, Plant House - Insect Frass Species *Hermetia*
Illucens

Results of Analysis

Parameter	Unit	Method	Results
Crude Fiber	% w/w	MS 1414 (1997)	4.9



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