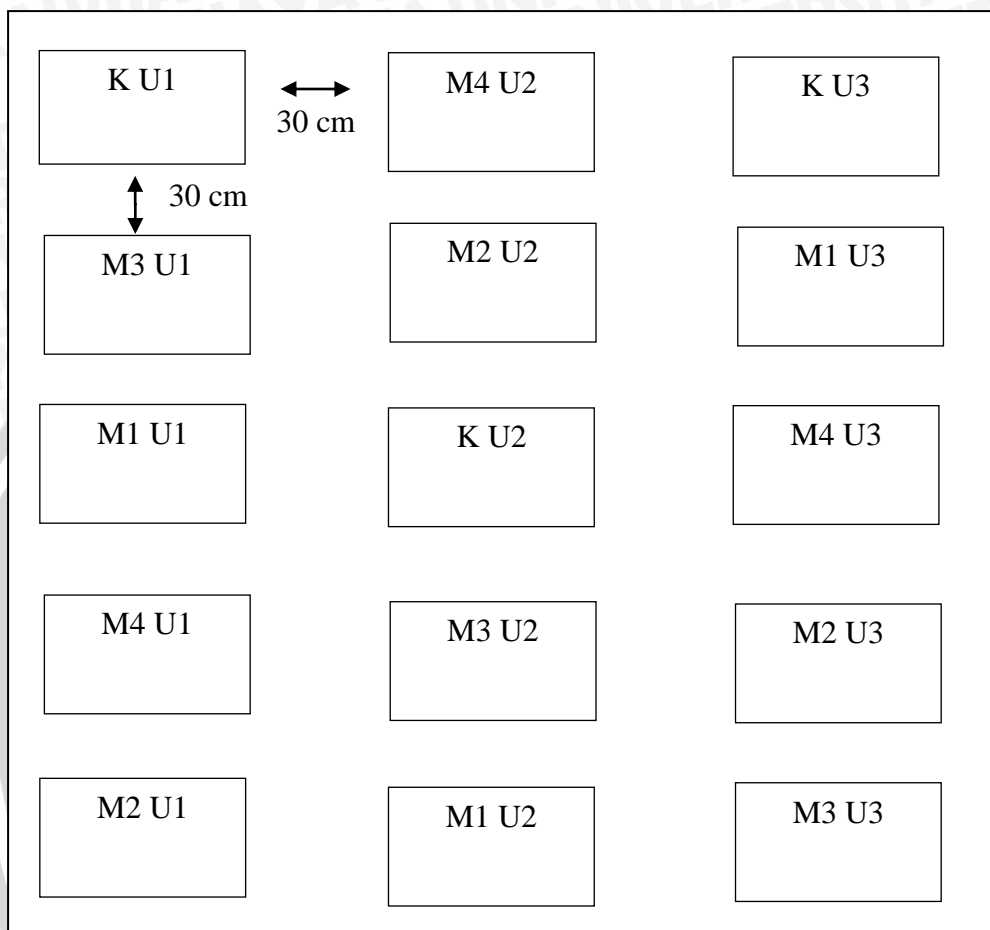


LAMPIRAN

Lampiran 1. Denah Penelitian



**Keterangan :**

M1 : Pupuk Urea (100%) setara dengan 750 kg/ha

M2 : Pupuk Urea (25%) + Zeolit (75%) setara dengan 187,5 kg/ha + 562,5 kg/ha

M3 : Pupuk Urea (50%) + Zeolit (50%) setara dengan 375 kg/ha + 375 kg/ha

M4 : Pupuk Urea (75%) + Zeolit (25%) setara dengan 562,5 kg/ha + 187,5 kg/ha

M5 : Tanpa pemberian pupuk Urea + Zeolit

U1 : Ulangan 1

U2 : Ulangan 2

U3 : Ulangan 3

## Lampiran 2. Perhitungan kebutuhan pupuk dan zeolit

Hektar Lapisan Olah (HLO)

$$BI = 1,35 \text{ g/cm}^3$$

Kedalaman Lapisan Olah (KLO) = 20 cm

$$\text{Luas Lahan (LL)} = 1 \text{ ha} = 10^4 \text{ m}^2 = 10^8 \text{ cm}^2$$

$$\text{HLO} = BI \times \text{KLO} \times \text{LL}$$

$$= 1,35 \text{ g/cm}^3 \times 20 \text{ cm} \times 10^8 \text{ cm}^2$$

$$= 2.700.000.000 \text{ g}$$

$$= 2.700.000 \text{ kg}$$

$$= 27 \times 10^5 \text{ kg}$$

1. Kebutuhan pupuk urea (M1) dengan 100% urea setara 750 kg/ha

$$= (\text{berat tanah per polibag} / \text{HLO}) \times (\text{dosis urea})$$

$$= (5 \text{ kg} / 27 \times 10^5 \text{ kg}) \times (750 \text{ kg})$$

$$= 14 \times 10^{-4} \text{ kg}$$

$$= 14 \times 10^{-1} \text{ gr}$$

$$= 1,4 \text{ g}$$

2. Kebutuhan pupuk urea dan zeolit (M2) dengan 25 % pupuk urea dan 75% zeolit setara 187,5 kg/ha dan 562,5 kg/ha

$$\text{Pupuk urea (25\%)} = 25 / 100 \times 1,4 \text{ g} = 0,35 \text{ g}$$

$$\text{Zeolit (75\%)} = 75 / 100 \times 1,4 \text{ g} = 1,05 \text{ g}$$

3. Kebutuhan pupuk urea dan zeolit (M3) dengan 50 % pupuk urea dan 50 % zeolit setara 375 kg/ha dan 375 kg/ha

$$\text{Pupuk urea (50\%)} = 50 / 100 \times 1,4 \text{ g} = 0,7 \text{ g}$$

$$\text{Zeolit (50\%)} = 50 / 100 \times 1,4 \text{ g} = 0,7 \text{ g}$$

4. Kebutuhan pupuk urea dan zeolit (M4) dengan 75% pupuk urea dan 25% zeolit setara 562,5 kg/ha dan 187,5 kg/ha

$$\text{Pupuk urea (75\%)} = 75 / 100 \times 1,4 \text{ g} = 1,05 \text{ g}$$

$$\text{Zeolit (25\%)} = 25 / 100 \times 1,4 \text{ g} = 0,35 \text{ g}$$

**Lampiran 3. Deskripsi sawi varietas toसान**

Nama lain	: Sawi Hijau (Caisim)
Umur Panen	: 25-30 HST
Bentuk tanaman	: Besar, semi buka dan tegak
Batang	: Tumbuh memanjang dan memiliki banyak tunas
Tangkai bunga	: Panjang dan langsing
Warna tangkai bunga	: Hijau tua
Bentuk daun	: Lebar, panjang dan memiliki pinggiran daun rata
Warna daun	: Hijau
Rekomendasi Dataran	: Rendah
Potensi hasil	: 20 - 25 ton/ha
Daya tumbuh aktual	: 98%
Kemurnian	: 98%
Sumber Benih	: PT. East West Seed Indonesia



## Lampiran 4. Hasil analisis laboratorium zeolit

Form. No. : M-10007-01A

DEPARTEMEN ENERGI DAN SUMBER DAYA MINERAL REPUBLIK INDONESIA  
 BADAN PENELITIAN DAN PENGEMBANGAN ENERGI DAN SUMBER DAYA MINERAL  
 PUSAT PENELITIAN DAN PENGEMBANGAN TEKNOLOGI MINERAL DAN BATUBARA

Jalan Jenderal Sudirman No. 623 Bandung - 40211

e-mail : tekminia@ppptm.dpr.go.id

Telfon / Pos : 816

Telepon : (022) 6030483/638024

Fax : (022) 6003373

LABORATORIUM KIMIA MINERAL DAN LINGKUNGAN  
 CHEMICAL LABORATORY for MINERAL and ENVIRONMENT

Nomor : 202 /KFM/Y/2001

**SERTIFIKAT ANALISIS**  
**(CERTIFICATE OF ANALYSIS)**



Dibuat untuk / Certified for : Sdr. Ir. Sugeng Pujiadi/CV. Sinar Jaya

Jenis sampel / Type of sample : Zeolit

Asal sampel / Origin of sample : -

Jumlah sampel / Amount of sample : 2 sampel

Nomor laboratorium / Laboratory Number : 1076-1076A/2001

Sampel diterima / Sample received on : 03-10-2001

## 1. Hasil analisis kimia (\*)

Nomor lab.:	1076/2001	1076A/2001
Tanda	I-Halus	II-Bongkah
SiO <sub>2</sub> , %	66,9	72,6 (Metode:SNI-13-3608-1994)
Al <sub>2</sub> O <sub>3</sub> , %	11,43	10,55 (Metode:SNI-13-3608-1994)
Fe <sub>2</sub> O <sub>3</sub> , %	4,59	2,58 (Metode:SNI-13-3608-1994)
TiO <sub>2</sub> , %	0,18	0,16 (Metode:SNI-13-3608-1994)
CaO, %	2,40	1,40 (Metode:SNI-13-3608-1994)
MgO, %	1,44	1,00 (Metode:SNI-13-3608-1994)
K <sub>2</sub> O, %	1,95	2,45 (Metode:SNI-13-3608-1994)
Na <sub>2</sub> O, %	1,29	1,29 (Metode:SNI-13-3608-1994)
LOI, %	9,66	7,82 (Metode:SNI-13-3608-1994)

Keterangan : Sampel diperiksa dari bahan kering (105-110°C)  
 Tanda (\*) Sudah terakreditasi.

## 2. Hasil analisis fisik....



Catatan : 1. Hasil analisis ini hanya berlaku untuk contoh yang diuji  
 Notes : These analysis result are only valid for the tested samples

2. Sertifikat ini tidak boleh diperbanyak (digandakan) tanpa izin dari peminta jasa

## 2. Hasil analisis fisik

Nomor lab.	: 1076/2001	1076A/2001
Tanda	: I-Halus	II-Bongkah
KTK, meq/100gr	: 88,49	120,02

## 3. Hasil analisis X-RD

Nomor lab.	: 1076/2001	1076A/2001
Tanda	: I-Halus	II-Bongkah
Kcmposisi mineral	:-Kuarsa -Kalsit -Mordenit	-Kuarsa -Mordenit

Bandung, 24 Oktober 2001

Manajer Teknis,



Mustar

Yang terhormat  
Sdr. Ir. Sugeng Pujiadi  
CV. Sinar Jaya  
Ferum Joyo, Grand Blok GG. No.3 Merjosari  
Kec. Lowokwaru-Malang Jawa Timur 65144.

2 dari 2

Catatan  
Notes

1. Hasil analisis ini hanya berlaku untuk contoh yang diuji  
*The analysis result are only valid for the tested samples*
2. Sertifikat ini tidak boleh diperbanyak (digandakan) tanpa izin dari peminta jasa  
*The certificate shall not be reproduced (copied) without the written permission of the client*



**BUCOFINDO**  
 WORLDWIDE SERVICES  
 CORRESPONDENTS OF:  
 SGS Société Générale de Surveillance S.A., GENEVA.

Laboratory Sucofindo Surabaya Branch  
 P. A. Yani No. 315, Surabaya  
 Phone : (031) 8470547 - 51, Fax : (031) 8470563

PT. SUPERINTENDING COMPANY OF INDONESIA

HEAD OFFICE : GRAHA SUCOFININDO JL. PATAH PANDA MESTREK SURABAYA  
 JAKARTA 12780 PO BOX 3377 JKT 10001 PHONE : (021) 2511111  
 FAX : (021) 7983888 TELE X : 66052111154 SUCOFININDO SURABAYA

No. : 3010856

**REPORT OF ANALYSIS**

OUR REF 212/35/000242/03/2002  
No. Order

The sample was submitted by client with the following identification.  
 Contoh disampaikan oleh pelanggan dengan keterangan sbh

CLIENT CV. SINAR JAYA  
Pelanggan

TYPE OF SAMPLE ZEOHITE  
Jenis Contoh

RECEIVED ON March 21, 2002  
Tgl. Penerimaan

TEST REQUIRED LOI, SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, CaO, MgO, Na<sub>2</sub>O, K<sub>2</sub>O, TiO<sub>2</sub>  
Analisa/Uji yang diminta

DESCRIPTION OF SAMPLE Form Stone  
Keterangan Contoh Weight/Volume 1 kg  
 Packing Unsealed plastic bag  
 INSPECTION SAMPLING WAS NOT CARRIED OUT BY

SAMPLE IDENTIFICATION  
Identifikasi Contoh

DATE OF CERTIFICATE ISSUED March 27, 2002  
Tgl. Penerbitan Serifikat

NO. OF PAGE INCLUDING COVER 2  
Jml. Hal. Termasuk hal muka

212/35.40/000133/03/2002/01  
 0005014  
 BS/dm

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SCI - 2





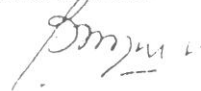
No. : 3010856

Page No. : 2 of 2

## REPORT OF ANALYSIS

Parameter	Unit (DB)	Test Result	Test Method
- LOI	%	12.01	Gravimetry
- SiO <sub>2</sub> content	%	72.35	Gravimetry
- Al <sub>2</sub> O <sub>3</sub> content	%	6.65	AAS
- Fe <sub>2</sub> O <sub>3</sub> content	%	1.78	AAS
- CaO content	%	4.72	AAS
- MgO content	%	0.16	AAS
- Cr <sub>2</sub> O <sub>3</sub> content	%	0.001	AAS
- Na <sub>2</sub> O content	%	0.87	AAS
- K <sub>2</sub> O content	%	0.66	AAS
- TiO <sub>2</sub> content	%	0.43	Spectrophotometry

Sucofindo Laboratory



**Ir. BAMBANG SUWONDO**  
ASST. MANAGER

212/35.40000133/03/2002/01  
0005014  
BS/dm

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SCI - 3



No. : 0005014

Page No. : 1

Laboratory Sucolindo Surabaya (Branch)  
 Jl. A. Yani No. 115, Surabaya  
 Phone : (031) 8470547 - 51, Fax : (031) 8470561

**ADDENDUM  
 REPORT OF ANALYSIS**

**OUR REI** 212/35/000242/03/2002  
 No. Order

The sample was submitted by client with the following identification  
 Contoh disampaikan oleh pelanggan dengan keterangan sbt

**CLIENT** CV. SINAR JAYA  
 Pelanggan

**TYPE OF SAMPLE** ZEOLITE  
 Jenis Contoh

**RECEIVED ON** March 21, 2002  
 Tgl. Penerimaan

**DESCRIPTION OF SAMPLE** Form : Stone  
 Keterangan Contoh Weight/Volume : 1 Kg  
 Packing : Unsealed plastic bag  
 INSPECTION SAMPLING WAS NOT CARRIED OUT BY ME (SUCOLINDO)

**SAMPLE IDENTIFICATION**  
 Identifikasi Contoh

**DATE OF REPORT ISSUED** April 1, 2002  
 Tgl. Penerbitan Report

**NO. OF PAGE INCLUDING COVER** 1  
 Jml Hal Termasuk hal muka

We hereby certify that, our Report of Analysis no. 3010856 dated March 27, 2002 is hereby

Parameter	Unit	Result	Test Method (*)
CEC	meq/100 gram	98.63	AA

(\*) The testing was carried out by Sucolindo Lab. Surabaya

Sucolindo - Surabaya

212/35 40/000133/03/2002/01  
 0005014  
 RS/dm

**Dr. BAMBANG SUWONO**  
 ASST. MANAGER

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This inspection order has been accepted and this certificate report is issued subject to the Standard General Conditions of the International Federation of Inspection Agencies (IFIA). The company's liability is limited under the terms of Article 17 of the Paris Convention of 1962. The company does not exonerate the buyers and sellers from exercising all their rights and discharging their liabilities under the applicable law.





### Lampiran 5. Hasil analisa dasar tanah

Tabel 10. Analisa dasar tanah

No.	Parameter	Metode Analisis	Hasil	Kriteria
1.	N-Total	Kjedahl	0,20 %	Rendah <sup>1</sup>
2.	P-Tersedia	P-Bray	95,13 mg/L	Sangat tinggi <sup>1</sup>
3.	K-Tersedia	NH <sub>4</sub> OAc	2,41 me/100g	Sangat tinggi <sup>1</sup>
4.	Na-Tersedia	NH <sub>4</sub> OAc	3,18 me/100g	Sangat tinggi <sup>1</sup>
5.	Ca-Tersedia	Titration EDTA	7,53 me/100g	Sedang <sup>1</sup>
6.	Mg-Tersedia	Titration EDTA	0,63 me/100g	Rendah <sup>1</sup>
7.	pH (H <sub>2</sub> O)	Elektrometrik	5,03	Masam <sup>1</sup>
8.	C-Organik	Walkley and Black	1,8 %	Rendah <sup>1</sup>
9.	Kapasitas Tukar Kation (KTK)	NH <sub>4</sub> OAc 1 N pH 7	32,99 me/100g	Tinggi <sup>1</sup>
10.	Kadar Air	Gravimetri	4,65 %	-
11.	Tekstur	Pipet	- Pasir : 49% - Debu : 17% - Liat : 34 %	Lempung <sup>2</sup> liat berpasir (Sand clay loam)

Keterangan :

1 : Staf Pusat Penelitian Tanah (1983)

2 : Segitiga Tekstur

### Lampiran 6. Analisis ragam (ANOVA)

Tabel 11. Analisis ragam pH tanah

SK	DB	JK	KT	Fhit	F.tab 5%	F. tab 1%
Perlakuan	4	0.216491	0.054123	1.28391 <sup>tn</sup>	3.47805	5.994339
Galat	10	0.421546	0.042155			
Total	14	0.638037	0.045574			

Tabel 12. Analisis ragam N-Total tanah

SK	DB	JK	KT	Fhit	F.tab 5%	F. tab 1%
Perlakuan	4	0.001293	0.000323333	2.694444 <sup>tn</sup>	3.47805	5.994339
Galat	10	0.0012	0.00012			
Total	14	0.002493	0.000178095			

Tabel 13. Analisis ragam KTK

SK	DB	JK	KT	Fhit	F.tab 5%	F. tab 1%
Perlakuan	4	77.06667	19.26667	9.03125 <sup>**</sup>	3.47805	5.994339
Galat	10	21.33333	2.133333			
Total	14	98.4	7.028571			

Tabel 14. Analisis ragam serapan N tanaman

SK	DB	JK	KT	Fhit	F.tab 5%	F. tab 1%
Perlakuan	4	791.2435	197.8109	15.97098 <sup>**</sup>	3.47805	5.994339
Galat	10	123.8565	12.38565			
Tota	14	915.0999	65.36428			

Tabel 15. Analisis ragam berat basah tanaman

SK	DB	JK	KT	Fhit	F.tab 5%	F. tab 1%
Perlakuan	4	6951.649	1737.912	41.65857 <sup>**</sup>	3.47805	5.994339
Galat	10	417.18	41.718			
Total	14	7368.829	526.345			

Tabel 16. Analisis ragam berat kering tanaman

SK	DB	JK	KT	Fhit	F.tab 5%	F. tab 1%
Perlakuan	4	19.87067	4.967667	13.47468 <sup>**</sup>	3.47805	5.994339
Galat	10	3.686667	0.368667			
Total	14	23.55733	1.682667			

Keterangan :

- tn : tidak berbeda nyata
- \* : berbeda nyata
- \*\* : sangat berbeda nyata

## Lampiran 7. Uji korelasi dan Regresi

### Uji Korelasi

	pH	N-total	Serapan N	BB	BK	KTK
pH	1					
N-total	-0,145	1				
Serapan N	-0,041	0,324	1			
BB	-0,017	0,211	0,967**	1		
BK	-0,030	0,308	0,995**	0,962**	1	
KTK	-0,374	0,206	0,760**	0,808**	0,746**	1

Keterangan :

\*\* : Correlation is significant at the 0,01 level (2-tailed)

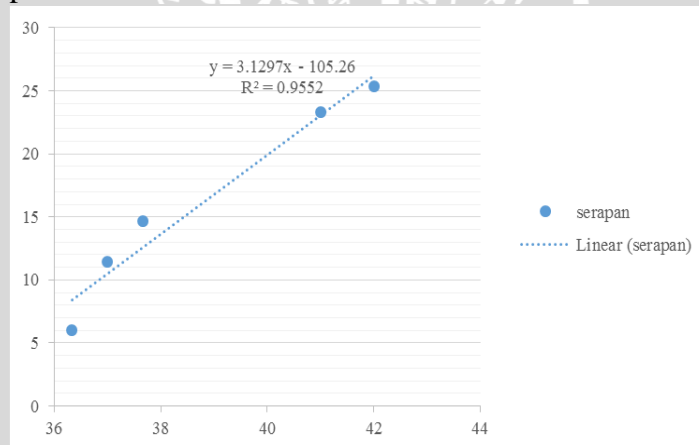
Kriteria Nilai Kolerasi

0,00 - 0,19	Sangat Rendah
0,20 – 0,39	Rendah
0,40 – 0,59	Sedang
0,60 – 0,79	Kuat
0,80 – 1, 00	Sangat Kuat

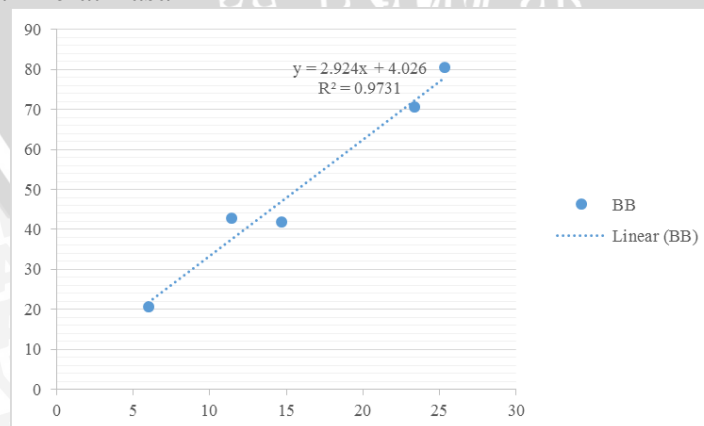
(Sugiyono, 2008)

### Uji Regresi

KTK dan serapan N tanaman



Serapan N dan Berat Basah





## Lampiran 8. Kriteria analisa tanah

Tabel 17. Kriteria Analisa Tanah Staf Pusat Penelitian Tanah (1983)

	Parmeter tanah					
	sangat rendah	rendah	sedang	tinggi	sangat tinggi	
C (%)	<1	1-2	2-3	3-5	>5	
N (%)	<0,1	0,1-0,2	0,21-0,5	0,51-0,75	>0,75	
C/N	<5	5-10	11-15	16-25	>25	
P <sub>2</sub> O <sub>5</sub> HCl 25% (mg 100 g <sup>-1</sup> )	<15	15-20	21-40	41-60	>60	
P <sub>2</sub> O <sub>5</sub> Bray (ppm P)	<4	5-7	8-10	11-15	>15	
P <sub>2</sub> O <sub>5</sub> Olsen (ppm P)	<5	5-10	10-15	16-20	>20	
K <sub>2</sub> O HCl 25% (mg 100 g <sup>-1</sup> )	<10	10-20	21-40	41-60	>60	
KTK (me 100 g tanah <sup>-1</sup> )	<5	5-16	17-24	25-40	>40	
Susunan kation	<2	2-5	6-10	11-20	>20	
- Ca (me 100 g tanah <sup>-1</sup> )	<0,3	0,4-1	1,1-2,0	2,1-8	>8	
- Mg (me 100 g tanah <sup>-1</sup> )	<0,1	0,1-0,3	0,4-0,5	0,6-1	>1	
- K (me 100 g tanah <sup>-1</sup> )	<0,1	0,1-0,3	0,4-0,7	0,8-1	>1	
- Na (me 100 g tanah <sup>-1</sup> )	<0,1	0,1-0,3	0,4-0,5	0,6-1	>1	
Kejenuhan basah (%)	<20	20-40	41-60	61-80	>80	
	sangat masam	masam	agak masam	normal	agak alkalis	alkalis
pH (H <sub>2</sub> O)	<4,5	4,5-5,5	5,6-6,5	6,6-7,5	7,6-8,5	>8,5
pH (KCL)	<2,5	2,5-4	-	4,1-6,0	6,1-6,5	.6,5

Lampiran 9. Dokumentasi penelitian



(a)



(b)



(b)



(c)



(d)

Keterangan :

- (a) Pemindahan media tanah ke tempat pengayakan
- (b) Pengayakan 2 mm untu persiapan media tanam
- (c) Penimbangan seberat 5kg tanah dalam polibag
- (d) Proses pemindahan bibit untuk ditanam dalam polibag
- (e) Bibit yang siap untuk ditanam





Umur tanaman 0 HST



Umur tanaman 30 HST



Tanaman sawi yang dipanen 30 HST





(a)



(b)



(c)



(d)

Keterangan :

- (a) Pemanasan aquades untuk membuat larutan asam borat
- (b) Pengovenan sampel tanaman dengan suhu 60° C
- (c) Penimbangan sampel
- (d) Proses destilasi