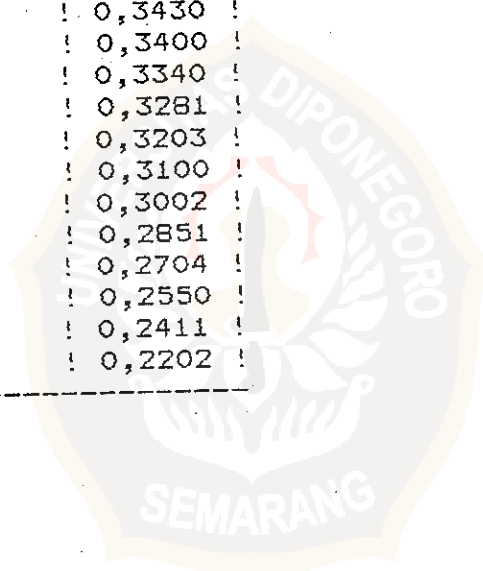


LAMPIRAN I : DATA PENGAMATAN

TABEL 6 : Absorbansi vs Panjang Gelombang
Larutan Standar Fe

! PANJANG GELOMBANG !	A !
400	0,1735
405	0,1960
410	0,2150
415	0,2366
420	0,2518
425	0,2676
430	0,2840
435	0,2980
440	0,3098
445	0,3188
450	0,3280
455	0,3335
460	0,3382
465	0,3430
470	0,3400
475	0,3340
480	0,3281
485	0,3203
490	0,3100
495	0,3002
500	0,2851
505	0,2704
510	0,2550
515	0,2411
520	0,2202



TABEL 7 : Penentuan Konsentrasi [SCN] Minimum (Jarak 0 cm)

[SCN] (ml)	ARUS (mA)	Regression Output:	
		!Constant	-0,4100
		!Std Err of Y Est	0,7078
		!R Squared	0,9221
		!No. of Observations	4,0000
		!Degrees of Freedom	2,0000
0,0	0,1		
0,5	0,6		
1,0	2,2		
1,5	4,7		
2,0	5,3	!X Coefficient(s)	3,0800
2,5	5,6	!Std Err of Coef.	0,6331
3,0	5,7		
3,5	5,6	Regression Output:	
4,0	5,7	!Constant	5,4476
4,5	5,7	!Std Err of Y Est	0,0526
5,0	5,8	!R Squared	0,6101
		!No. of Observations	6,0000
		!Degrees of Freedom	4,0000
		!X Coefficient(s)	0,0629
		!Std Err of Coef.	0,0251

TABEL 8 : Penentuan Konsentrasi [SCN] Minimum (Jarak 1 cm)

[SCN] (ml)	ARUS (mA)	Regression Output:	
		!Constant	0,4600
		!Std Err of Y Est	0,7440
		!R Squared	0,9685
		!No. of Observations	4,0000
		!Degrees of Freedom	2,0000
0,0	1,0		
0,5	2,5		
1,0	5,2		
1,5	8,8		
2,0	9,4	!X Coefficient(s)	5,2200
2,5	10,0	!Std Err of Coef.	0,6654
3,0	10,1		
3,5	10,1	Regression Output:	
4,0	10,2	!Constant	9,8810
4,5	10,1	!Std Err of Y Est	0,0526
5,0	10,2	!R Squared	0,6101
		!No. of Observations	6,0000
		!Degrees of Freedom	4,0000
		!X Coefficient(s)	0,0629
		!Std Err of Coef.	0,0251

TABEL 9 : Penentuan [SCN] Minimum (Jarak 2 cm)

[SCN] (ml)	ARUS (mA)	Regression Output:	
0,0	3,2	!Constant	2,8700
0,5	5,9	!Std Err of Y Est	0,4990
1,0	9,1	!R Squared	0,9910
1,5	13,2	!No. of Observations	4,0000
2,0	14,0	!Degrees of Freedom	2,0000
2,5	14,7	!X Coefficient(s)	6,6400
3,0	14,8	!Std Err of Coef.	0,4463
3,5	14,8	Regression Output:	
4,0	14,9	!Constant	14,5333
4,5	14,9	!Std Err of Y Est	0,0365
5,0	14,9	!R Squared	0,8400
		!No. of Observations	6,0000
		!Degrees of Freedom	4,0000
		!X Coefficient(s)	0,0800
		!Std Err of Coef.	0,0175

TABEL 10 : Penentuan [SCN] Minimum (Jarak 3 cm)

[SCN] (ml)	ARUS (mA)	Regression Output:	
0,0	6,5	!Constant	6,3500
0,5	10,0	!Std Err of Y Est	0,3240
1,0	13,4	!R Squared	0,9969
1,5	17,7	!No. of Observations	4,0000
2,0	18,6	!Degrees of Freedom	2,0000
2,5	19,5	!X Coefficient(s)	7,4000
3,0	19,6	!Std Err of Coef.	0,2898
3,5	19,5	Regression Output:	
4,0	19,6	!Constant	19,3000
4,5	19,7	!Std Err of Y Est	0,0548
5,0	19,7	!R Squared	0,7000
		!No. of Observations	6,0000
		!Degrees of Freedom	4,0000
		!X Coefficient(s)	0,0800
		!Std Err of Coef.	0,0262

TABEL 11 : Penentuan [SCN] Minimum (Jarak 4 cm)

[SCN] (ml)	ARUS (mA)	Regression Output:	
		!Constant	10,4000
		!Std Err of Y Est	0,1936
! 0,0 !	! 10,3 !	!R Squared	0,9989
! 0,5 !	! 14,2 !	!No. of Observations	4,0000
! 1,0 !	! 18,1 !	!Degrees of Freedom	2,0000
! 1,5 !	! 21,5 !		
! 2,0 !	! 23,0 !	!X Coefficient(s)	7,5000
! 2,5 !	! 23,8 !	!Std Err of Coef.	0,1732
! 3,0 !	! 23,8 !		
! 3,5 !	! 23,9 !	Regression Output:	
! 4,0 !	! 23,8 !	!Constant	23,7000
! 4,5 !	! 23,9 !	!Std Err of Y Est	0,0447
! 5,0 !	! 23,9 !	!R Squared	0,4667
		!No. of Observations	6,0000
		!Degrees of Freedom	4,0000
		!X Coefficient(s)	0,0400
		!Std Err of Coef.	0,0214

TABEL 12 : Penentuan [SCN] Minimum (Jarak 5 cm)

[SCN] (ml)	ARUS (mA)	Regression Output:	
		!Constant	15,2800
		!Std Err of Y Est	0,8509
! 0,0 !	! 14,7 !	!R Squared	0,9722
! 0,5 !	! 19,0 !	!No. of Observations	4,0000
! 1,0 !	! 22,3 !	!Degrees of Freedom	2,0000
! 1,5 !	! 24,2 !		
! 2,0 !	! 24,6 !	!X Coefficient(s)	6,3600
! 2,5 !	! 24,6 !	!Std Err of Coef.	0,7611
! 3,0 !	! 24,6 !		
! 3,5 !	! 24,6 !	Regression Output:	
! 4,0 !	! 24,6 !	!Constant	24,6000
! 4,5 !	! 24,6 !	!Std Err of Y Est	0,0000
! 5,0 !	! 24,6 !	!R Squared	0,0000
		!No. of Observations	6,0000
		!Degrees of Freedom	4,0000
		!X Coefficient(s)	0,0000
		!Std Err of Coef.	0,0000

TABEL 13 : Penentuan [SCN] Minimum (Spektronik-20)

[SCN] !(ml)!	A	Regression Output:	
		Constant	0,0120
		Std Err of Y Est	0,0156
!0,0 !0,0000		R Squared	0,9916
!0,5 !0,1367		No. of Observations	4,0000
!1,0 !0,2291		Degrees of Freedom	2,0000
!1,5 !0,3279			
!2,0 !0,3660		X Coefficient(s)	0,2152
!2,5 !0,3890		Std Err of Coef.	0,0140
!3,0 !0,3970			
!3,5 !0,4000			
!4,0 !0,4050		Regression Output:	
!4,5 !0,4000		Constant	0,3792
!5,0 !0,4050		Std Err of Y Est	0,0036
		R Squared	0,7118
		No. of Observations	6,0000
		Degrees of Freedom	4,0000
		X Coefficient(s)	0,0054
		Std Err of Coef.	0,0017

TABEL 14 : Kurva Standar (Spektronik-20)

[Fe] !(ml)!	A	REG	Regression Output:	
		Constant	0,0105	
		Std Err of Y Est	0,0053	
!0,0 !0,0000	!0,0105	R Squared	0,9986	
!0,5 !0,0555	!0,0511	No. of Observations	11,0000	
!1,0 !0,0915	!0,0917	Degrees of Freedom	9,0000	
!1,5 !0,1325	!0,1323			
!2,0 !0,1800	!0,1729	X Coefficient(s)	0,0812	
!2,5 !0,2168	!0,2135	Std Err of Coef.	0,0010	
!3,0 !0,2541	!0,2541			
!3,5 !0,2950	!0,2947			
!4,0 !0,3372	!0,3353			
!4,5 !0,3768	!0,3759			
!5,0 !0,4089	!0,4165			

TABEL 15 : Kurva Standar (Jarak 0 cm)

![[Fe]]!ARUS ! REG			Regression Output:	
!(ml)!	!(mA) !	!	Constant	
				-0,8000
			Std Err of Y Est	0,5941
!0,0 !	!0,1 !	!-0,8000	R Squared	0,9345
!0,5 !	!0,3 !	!-0,1582	No. of Observations	11,0000
!1,0 !	!0,4 !	!0,4836	Degrees of Freedom	9,0000
!1,5 !	!0,6 !	!1,1255		
!2,0 !	!1,0 !	!1,7673	X Coefficient(s)	1,2836
!2,5 !	!1,7 !	!2,4091	Std Err of Coef.	0,1133
!3,0 !	!2,6 !	!3,0509		
!3,5 !	!3,6 !	!3,6927		
!4,0 !	!4,8 !	!4,3345		
!4,5 !	!5,5 !	!4,9764		
!5,0 !	!5,9 !	!5,6182		

TABEL 16 : Kurva Standar (Jarak 1 cm)

![[Fe]]!ARUS ! REG			Regression Output:	
!(ml)!	!(mA) !	!	Constant	
				0,0045
			Std Err of Y Est	0,6144
!0,0 !	!1,0 !	!0,0045	R Squared	0,9719
!0,5 !	!1,4 !	!1,0382	No. of Observations	11,0000
!1,0 !	!1,8 !	!2,0718	Degrees of Freedom	9,0000
!1,5 !	!2,5 !	!3,1055		
!2,0 !	!3,4 !	!4,1391	X Coefficient(s)	2,0673
!2,5 !	!4,7 !	!5,1727	Std Err of Coef.	0,1172
!3,0 !	!5,8 !	!6,2064		
!3,5 !	!7,1 !	!7,2400		
!4,0 !	!9,0 !	!8,2736		
!4,5 !	!9,9 !	!9,3073		
!5,0 !	!10,3 !	!10,3409		

TABEL 17 : Kurva Standar (Jarak 2 cm)

! [Fe] !	ARUS !	REG	Regression Output:	
!(ml)!	(mA) !		Constant	2,3682
			Std Err of Y Est	0,5640
!0,0 !	3,2 !	2,3682	R Squared	0,9845
!0,5 !	3,9 !	3,6527	No. of Observations	11,0000
!1,0 !	4,7 !	4,9373	Degrees of Freedom	9,0000
!1,5 !	5,8 !	6,2218		
!2,0 !	6,8 !	7,5064	X Coefficient(s)	2,5691
!2,5 !	8,4 !	8,7909	Std Err of Coef.	0,1075
!3,0 !	9,8 !	10,0755		
!3,5 !	11,2 !	11,3600		
!4,0 !	13,3 !	12,6445		
!4,5 !	14,7 !	13,9291		
!5,0 !	14,9 !	15,2136		

TABEL 18 : Kurva Standar (Jarak 3 cm)

! [Fe] !	ARUS !	REG	Regression Output:	
!(ml)!	(mA) !		Constant	5,9000
			Std Err of Y Est	0,4679
!0,0 !	6,5 !	5,9000	R Squared	0,9913
!0,5 !	7,5 !	7,3255	No. of Observations	11,0000
!1,0 !	8,5 !	8,7509	Degrees of Freedom	9,0000
!1,5 !	9,9 !	10,1764		
!2,0 !	11,1 !	11,6018	X Coefficient(s)	2,8509
!2,5 !	12,7 !	13,0273	Std Err of Coef.	0,0892
!3,0 !	14,4 !	14,4527		
!3,5 !	15,7 !	15,8782		
!4,0 !	17,8 !	17,3036		
!4,5 !	19,5 !	18,7291		
!5,0 !	19,7 !	20,1545		

TABEL 19 : Kurva Standar (Jarak 4 cm)

![[Fe]]!	ARUS !	REG	Regression Output:	
!(ml)!	!(mA) !	Constant		9,9273
		Std Err of Y Est		0,3814
!0,0 !	!10,3 !	9,9273	R Squared	0,9946
!0,5 !	!11,2 !	!11,4091	No. of Observations	11,0000
!1,0 !	!12,7 !	!12,8909	Degrees of Freedom	9,0000
!1,5 !	!14,2 !	!14,3727		
!2,0 !	!15,6 !	!15,8545	X Coefficient(s)	2,9636
!2,5 !	!17,3 !	!17,3364	Std Err of Coef.	0,0727
!3,0 !	!19,0 !	!18,8182		
!3,5 !	!20,5 !	!20,3000		
!4,0 !	!22,2 !	!21,7818		
!4,5 !	!23,7 !	!23,2636		
!5,0 !	!24,0 !	!24,7455		

TABEL 20 : Kurva Standar (Jarak 5 cm)

![[Fe]]!	ARUS !	REG	Regression Output:	
!(ml)!	!(mA) !	Constant		14,8311
		Std Err of Y Est		0,3868
!0,0 !	!14,7 !	!14,8311	R Squared	0,9897
!0,5 !	!15,8 !	!16,1261	No. of Observations	9,0000
!1,0 !	!17,4 !	!17,4211	Degrees of Freedom	7,0000
!1,5 !	!18,8 !	!18,7161		
!2,0 !	!20,2 !	!20,0111	X Coefficient(s)	2,5900
!2,5 !	!21,8 !	!21,3061	Std Err of Coef.	0,0999
!3,0 !	!23,0 !	!22,6011		
!3,5 !	!23,9 !	!23,8961		
!4,0 !	!24,5 !	!25,1911		
!4,5 !	!24,6 !	!26,4861		
!5,0 !	!24,6 !	!27,7811		

TABEL 21 : Kurva Standar (Jarak 6 cm)

! [Fe] ! !(ml)!	ARUS ! (mA) !	REG	Regression Output:	
		Constant		19,7500
		Std Err of Y Est		0,8574
!0,0 !	!18,5 !	!19,7500	R Squared	0,8661
!0,5 !	!21,0 !	!20,6714	No. of Observations	7,0000
!1,0 !	!21,9 !	!21,5929	Degrees of Freedom	5,0000
!1,5 !	!23,4 !	!22,5143		
!2,0 !	!23,8 !	!23,4357	X Coefficient(s)	1,8429
!2,5 !	!24,0 !	!24,3571	Std Err of Coef.	0,3241
!3,0 !	!24,6 !	!25,2786		
!3,5 !	!24,6 !	!26,2000		
!4,0 !	!24,6 !	!27,1214		
!4,5 !	!24,6 !	!28,0429		
!5,0 !	!24,6 !	!28,9643		

TABEL 22 : Kurva Standar (Jarak 7 cm)

! [Fe] ! !(ml)!	ARUS ! (mA) !	REG	Regression Output:	
		Constant		22,9100
		Std Err of Y Est		0,0316
!0,0 !	!22,9 !	!22,9100	R Squared	0,9987
!0,5 !	!23,5 !	!23,4700	No. of Observations	4,0000
!1,0 !	!24,0 !	!24,0300	Degrees of Freedom	2,0000
!1,5 !	!24,6 !	!24,5900		
!2,0 !	!24,6 !	!25,1500	X Coefficient(s)	1,1200
!2,5 !	!24,6 !	!25,7100	Std Err of Coef.	0,0283
!3,0 !	!24,6 !	!26,2700		
!3,5 !	!24,6 !	!26,8300		
!4,0 !	!24,6 !	!27,3900		
!4,5 !	!24,6 !	!27,9500		
!5,0 !	!24,6 !	!28,5100		

LAMPIRAN II : Perhitungan

Dari data kurva standar diperoleh persamaan garis lurus :

$$y = m x + c$$

y = Arus listrik terbaca (alat rekayasa)

= Absorbansi terbaca (spektronik-20)

x = Volume $[\text{SCN}^-]$ 0,0200 N (penentuan $[\text{SCN}^-]$ minimum).

= Volume Fe^{3+} 0,1000 mg/ml (penentuan kandungan besi).

Spektronik-20 :

Dalam penentuan $[\text{SCN}^-]$ minimum, dengan mensubstitusikan kedua persamaan garis lurus diperoleh :

$$y_1 = 0,2152 x + 0,0120$$

$$y_2 = 0,0054 x + 0,3792$$

$$y_1 = y_2$$

$$0,2152 x + 0,0120 = 0,0054 x + 0,3792$$

$$0,2152 x - 0,0054 x = 0,3792 - 0,0120$$

$$0,2098 x = 0,3672$$

$$x = \frac{0,3672}{0,2098} = 1,7502$$

Jadi Volume minimum $[\text{SCN}^-]$ 0,0200 N Yang dibutuhkan = 1,7502 ml.

Pada penentuan kadungan besi dalam air tanah persamaan garis lurus dari kurva standar :

$$y = 0,0812 x + 0,0105$$

Absorbansi terbaca = $y = 0,1101$ (sampel)

= 0,0969 (standar)

maka : $0,1101 = 0,0812 x + 0,0105$

$$0,0812 x = 0,1101 - 0,0105$$

$$0,0812 x = 0,0996$$

$$x = \frac{0,0996}{0,0812} = 1,2266$$

Maka dalam sampel terdapat Fe^{3+} 0,1000 mg/ml
sebanyak : 1,2266 ml.

Karena volume sampel yang digunakan = 20 ml maka
dalam 20 ml sampel terdapat Fe^{3+} sebanyak :

$$0,1000 \text{ mg/ml} \times 1,2266 \text{ ml} = [\text{Fe}^{3+}] \times 20 \text{ ml}$$

$$[\text{Fe}^{3+}] = \frac{0,1000 \text{ mg/ml} \times 1,2266 \text{ ml}}{20 \text{ ml}}$$

$$= 6,1330 \times 10^{-3} \text{ mg/ml}$$

$$= 6133 \text{ ppb}$$

Untuk larutan standar, $y = 0,0969$, maka :

$$0,0969 = 0,0812 x + 0,0105$$

$$0,0812 x = 0,0969 - 0,0105$$

$$0,0812 x = 0,0864$$

$$x = \frac{0,0864}{0,0812} = 1,0640$$

Maka volume Fe^{3+} 0,1000 mg/ml dalam larutan
standar = 1,0640 ml

Karena volume larutan standar = 1 ml, maka dalam
1 ml larutan standar terdapat Fe^{3+} sebanyak :

$$0,1000 \text{ mg/ml} \times 1,0640 \text{ ml} = [\text{Fe}^{3+}] \times 1 \text{ ml}$$

$$[\text{Fe}^{3+}] = \frac{0,1000 \text{ mg/ml} \times 1,0640 \text{ ml}}{1 \text{ ml}}$$

$$= 0,1064 \text{ mg/ml}$$

$$= 106400 \text{ ppb}$$

Alat Hasil Rekayasa :

Pada penentuan kadar besi dalam air tanah,

Pada jarak = 0,0000 cm :

Persamaan garis lurus dari kurva standar :

$$y = 1,2836 x - 0,8000$$

Arus listrik terbaca = $y = 0,4600$ mA

$$0,46000 = 1,2836 x - 0,8000$$

$$1,2836 x = 0,4600 - 0,8000$$

$$1,2836 x = 1,2600$$

$$x = \frac{1,2600}{1,2836} = 0,9816$$

Maka volume Fe^{3+} 0,1000 mg/ml = 0,9816 ml

Karena volume sampel = 20 ml, maka dalam 20 ml

sampel terdapat Fe^{3+} sebanyak :

$$0,1000 \text{ mg/ml} \times 0,9816 \text{ ml} = [\text{Fe}^{3+}] \times 20 \text{ ml}$$

$$[\text{Fe}^{3+}] = \frac{0,1000 \text{ mg/ml} \times 0,9816 \text{ ml}}{20 \text{ ml}}$$

$$= 4,9080 \times 10^{-3} \text{ mg/ml}$$

$$= 4908 \text{ ppb}$$

Pada jarak = 1,0000 cm :

Persamaan garis lurus dari kurva standar :

$$y = 2,0673 x + 0,0045$$

Arus listrik terbaca = $y = 2,1300$ mA

$$2,1300 = 2,0673 x + 0,0045$$

$$2,0673 x = 2,1300 - 0,0045$$

$$2,0673 x = 2,1255$$

$$x = \frac{2,1255}{2,0673} = 1,0281$$

Maka volume Fe^{3+} 0,1000 mg/ml = 1,0281 ml

Karena volume sampel = 20 ml, maka dalam 20 ml sampel terdapat Fe^{3+} sebanyak :

$$0,1000 \text{ mg/ml} \times 1,0281 \text{ ml} = [\text{Fe}^{3+}] \times 20 \text{ ml}$$

$$[\text{Fe}^{3+}] = \frac{0,1000 \text{ mg/ml} \times 1,0281 \text{ ml}}{20 \text{ ml}}$$

$$= 5,1405 \times 10^{-3} \text{ mg/ml}$$

$$= 5140 \text{ ppb}$$

Pada jarak = 2,0000 cm :

Persamaan garis lurus dari kurva standar :

$$y = 2,5691 x + 2,3682$$

Arus listrik terbaca = $y = 5,2000 \text{ mA}$

$$5,2000 = 2,5691 x + 2,3682$$

$$2,5691 x = 5,2000 - 2,3682$$

$$2,5691 x = 2,8318$$

$$x = \frac{2,8318}{2,5691} = 1,1022$$

Maka volume Fe^{3+} 0,1000 mg/ml = 1,1022 ml

Karena volume sampel = 20 ml, maka dalam 20 ml sampel terdapat Fe^{3+} sebanyak :

$$0,1000 \text{ mg/ml} \times 1,1022 \text{ ml} = [\text{Fe}^{3+}] \times 20 \text{ ml}$$

$$[\text{Fe}^{3+}] = \frac{0,1000 \text{ mg/ml} \times 1,1022 \text{ ml}}{20 \text{ ml}}$$

$$= 5,5110 \times 10^{-3} \text{ mg/ml}$$

$$= 5511 \text{ ppb}$$

Pada jarak = 3,0000 cm :

Persamaan garis lurus dari kurva standar :

$$y = 2,8509 x + 5,9000$$

Arus listrik terbaca = $y = 9,0600$ mA

$$9,0600 = 2,8509 x + 5,9000$$

$$2,8509 x = 9,0600 - 5,9000$$

$$2,8509 x = 3,1600$$

$$x = \frac{3,1600}{2,8509} = 1,1084$$

Maka volume Fe^{3+} $0,1000$ mg/ml = $1,1084$ ml

Karena volume sampel = 20 ml, maka dalam 20 ml sampel terdapat Fe^{3+} sebanyak :

$$0,1000 \text{ mg/ml} \times 1,1084 \text{ ml} = [\text{Fe}^{3+}] \times 20 \text{ ml}$$

$$[\text{Fe}^{3+}] = \frac{0,1000 \text{ mg/ml} \times 1,1084 \text{ ml}}{20 \text{ ml}}$$

$$= 5,5420 \times 10^{-3} \text{ mg/ml}$$

$$= 5542 \text{ ppb}$$

Pada jarak = $4,0000$ cm :

Persamaan garis lurus dari kurva standar :

$$y = 2,9636 x + 9,9273$$

Arus listrik terbaca = $y = 13,8000$ mA

$$13,8000 = 2,9636 x + 9,9273$$

$$2,9636 x = 13,8000 - 9,9273$$

$$2,9636 x = 3,8727$$

$$x = \frac{3,8727}{2,9636} = 1,3067$$

Maka volume Fe^{3+} $0,1000$ mg/ml = $1,3067$ ml

Karena volume sampel = 20 ml, maka dalam 20 ml sampel terdapat Fe^{3+} sebanyak :

$$0,1000 \text{ mg/ml} \times 1,3067 \text{ ml} = [\text{Fe}^{3+}] \times 20 \text{ ml}$$

$$\begin{aligned}
 [\text{Fe}^{3+}] &= \frac{0,1000 \text{ mg/ml} \times 1,3067 \text{ ml}}{20 \text{ ml}} \\
 &= 6,5335 \times 10^{-3} \text{ mg/ml} \\
 &= 6533 \text{ ppb}
 \end{aligned}$$

Pada jarak = 5,0000 cm :

Persamaan garis lurus dari kurva standar :

$$y = 2,5900 x + 14,8311$$

Arus listrik terbaca = $y = 18,1600 \text{ mA}$

$$18,1600 = 2,5900 x + 14,8311$$

$$2,5900 x = 18,1600 - 14,8311$$

$$2,5900 x = 3,3289$$

$$x = \frac{3,3289}{2,5900} = 1,2853$$

Maka volume Fe^{3+} 0,1000 mg/ml = 1,2853 ml

Karena volume sampel = 20 ml, maka dalam 20 ml sampel terdapat Fe^{3+} sebanyak :

$$0,1000 \text{ mg/ml} \times 1,2853 \text{ ml} = [\text{Fe}^{3+}] \times 20 \text{ ml}$$

$$\begin{aligned}
 [\text{Fe}^{3+}] &= \frac{0,1000 \text{ mg/ml} \times 1,2853 \text{ ml}}{20 \text{ ml}} \\
 &= 6,4256 \times 10^{-3} \text{ mg/ml} \\
 &= 6426 \text{ ppb}
 \end{aligned}$$

Pada jarak = 6,0000 cm :

Persamaan garis lurus dari kurva standar :

$$y = 1,8429 x + 19,7500$$

Arus listrik terbaca = $y = 22,0600 \text{ mA}$

$$22,0600 = 1,8429 x + 19,7500$$

$$1,8429 x = 22,0600 - 19,7500$$

$$1,8429 x = 2,3100$$

$$x = \frac{2,3100}{1,8429} = 1,2534$$

Maka volume Fe^{3+} 0,1000 mg/ml = 1,2534 ml

Karena volume sampel = 20 ml, maka dalam 20 ml sampel terdapat Fe^{3+} sebanyak :

$$0,1000 \text{ mg/ml} \times 1,2534 \text{ ml} = [\text{Fe}^{3+}] \times 20 \text{ ml}$$

$$\begin{aligned} [\text{Fe}^{3+}] &= \frac{0,1000 \text{ mg/ml} \times 1,2534 \text{ ml}}{20 \text{ ml}} \\ &= 6,2670 \times 10^{-3} \text{ mg/ml} \\ &= 6267 \text{ ppb} \end{aligned}$$

Pada jarak = 7,0000 cm :

Persamaan garis lurus dari kurva standar :

$$y = 1,1200 x + 22,9100$$

Arus listrik terbaca = y = 24,2300 mA

$$24,2300 = 1,1200 x + 22,9100$$

$$1,1200 x = 24,2300 - 22,9100$$

$$1,1200 x = 1,3200$$

$$x = \frac{1,3200}{1,1200} = 1,1785$$

Maka volume Fe^{3+} 0,1000 mg/ml = 1,1785 ml

Karena volume sampel = 20 ml, maka dalam 20 ml sampel terdapat Fe^{3+} sebanyak :

$$0,1000 \text{ mg/ml} \times 1,1785 \text{ ml} = [\text{Fe}^{3+}] \times 20 \text{ ml}$$

$$\begin{aligned} [\text{Fe}^{3+}] &= \frac{0,1000 \text{ mg/ml} \times 1,1785 \text{ ml}}{20 \text{ ml}} \\ &= 5,8925 \times 10^{-3} \text{ mg/ml} \\ &= 5892 \text{ ppb} \end{aligned}$$

LAMPIRAN III : Data Beberapa Bahan Semikonduktor

Tabel 23 : Mobilitas Beberapa Jenis Semikonduktor

Jenis	μ (cm ² .volt ⁻¹ .s ⁻¹)	
	Elektron	Hole
C	1800	1600
Si	1350	475
Ge	3900	1900
GaAs	8500	400
GaP	110	75
GaSb	4000	1400
InAs	33000	460
InP	4600	150
InSb	80000	750
CdS	340	18
CdSe	600	-
CdTe	300	65
ZnS	120	5
ZnSe	530	16
ZnTe	530	900

(Kittel C., 1976).

Tabel 24 : Energi Gap (E_g) Beberapa Jenis Semikonduktor

Golongan	Jenis	E_g (eV)
IV	C	5,3000
	Si	1,1000
	Ge	0,7000
	Sn	0,0800
III-V	GaAs	1,4000
	GaP	2,3000
	GaSb	0,7000
	InAs	0,4000
	InP	1,3000
	InSb	0,2000
II-IV	CdS	2,6000
	CdSe	1,7000
	CdTe	1,5000
	ZnS	3,6000
	ZnSe	2,7000
	ZnTe	2,3000
IV-VI	PbS	0,4000
	PbSe	0,3000
	PbTe	0,3000

(Kittel C., 1976).

LAMPIRAN IV : DATA WARNA DARI RADIASI SINAR TAMPAK

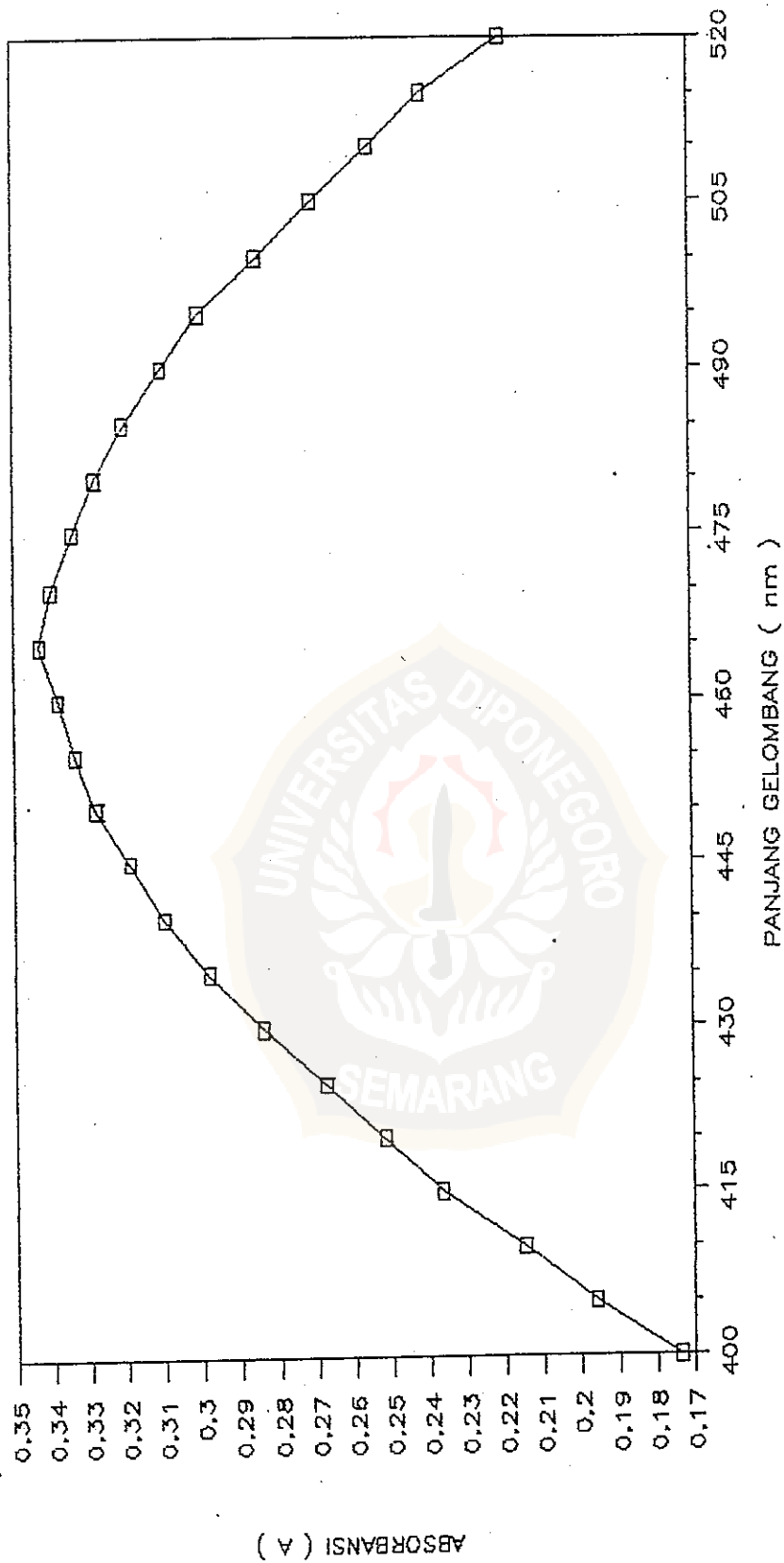
TABEL 25 : Warna-warna Dari Radiasi Sinar Tampak

Panjang Gelombang (nm)	Warna	Komplemen
400 - 465	Ungu	Hijau-Kuning
465 - 482	Biru	Kuning
482 - 487	Biru Kehijauan	Jingga
487 - 493	Hijau-Biru	Jingga-Merah
493 - 498	Hijau Kebiruan	Merah
498 - 530	Hijau	Lembayung-Merah
530 - 559	Hijau Kekuningan	Lembayung-Merah
559 - 571	Hijau-Kuning	Lembayung
571 - 576	Kuning Kehijauan	Ungu
576 - 580	Kuning	Biru
580 - 587	Jingga Kekuningan	Biru
587 - 597	Jingga	Biru Kehijauan
597 - 617	Jingga Kemerahan	Hijau-Biru
617 - 780	Merah	Hijau-Biru

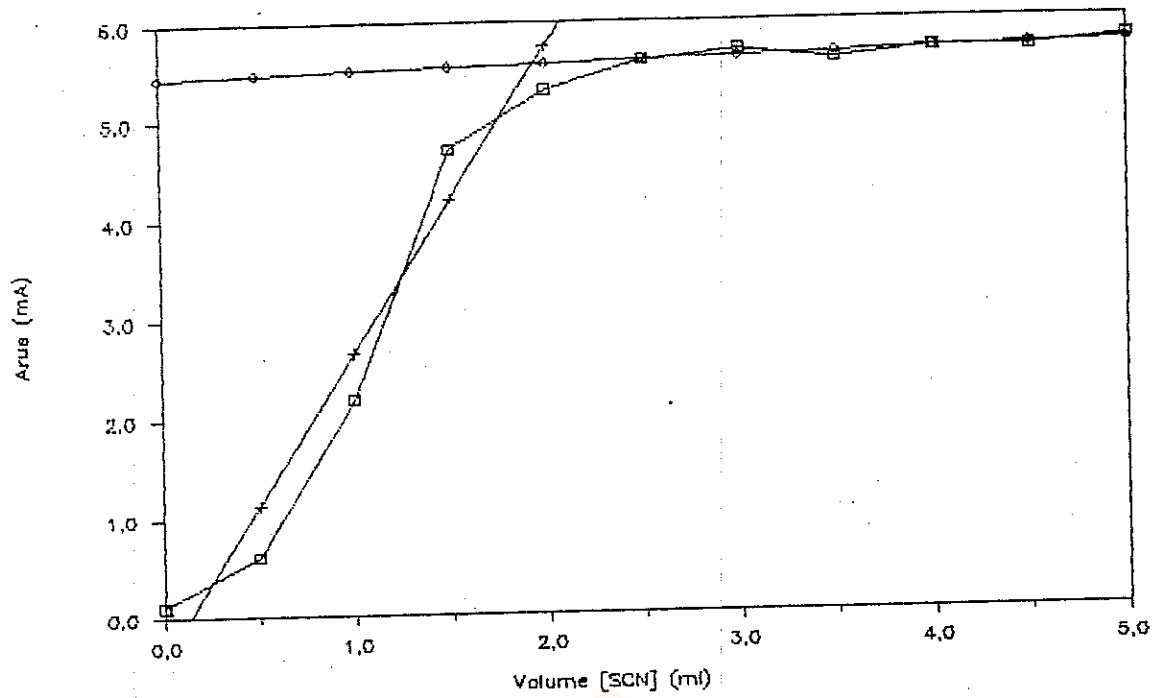
(Ewing G.W., 1985).

G R A F I K



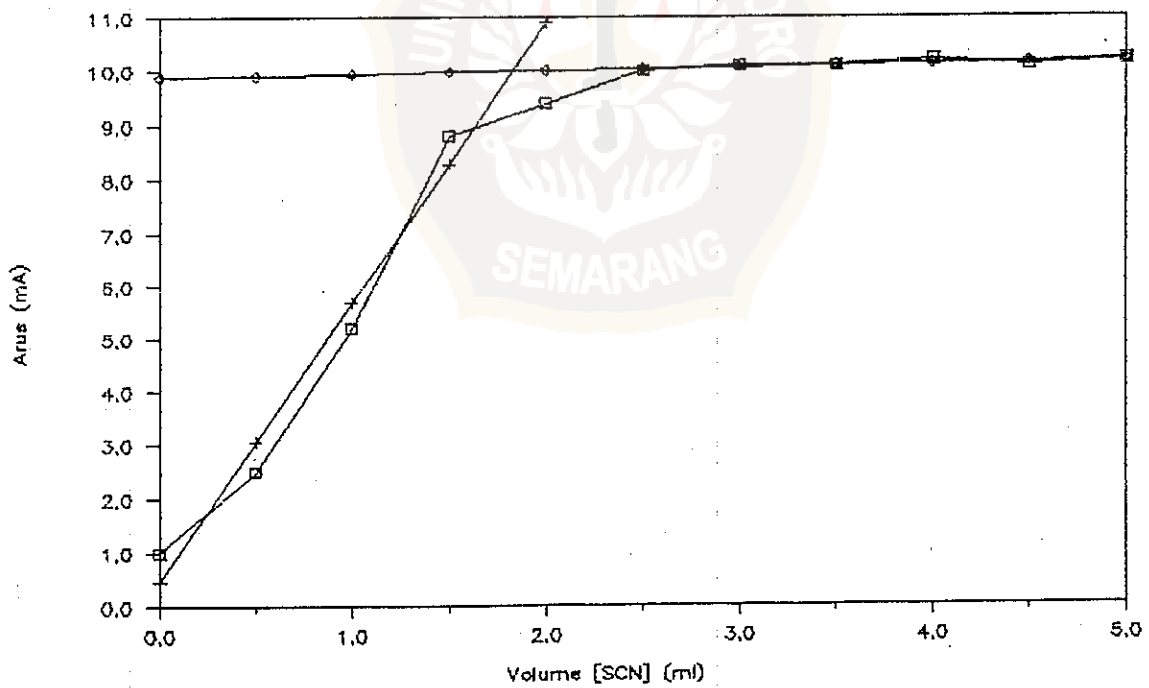


GRAFIK 1 : Kurva Optimasi Panjang Gelombang Larutan Standar Fe
 Panjang Gelombang vs Absorbansi



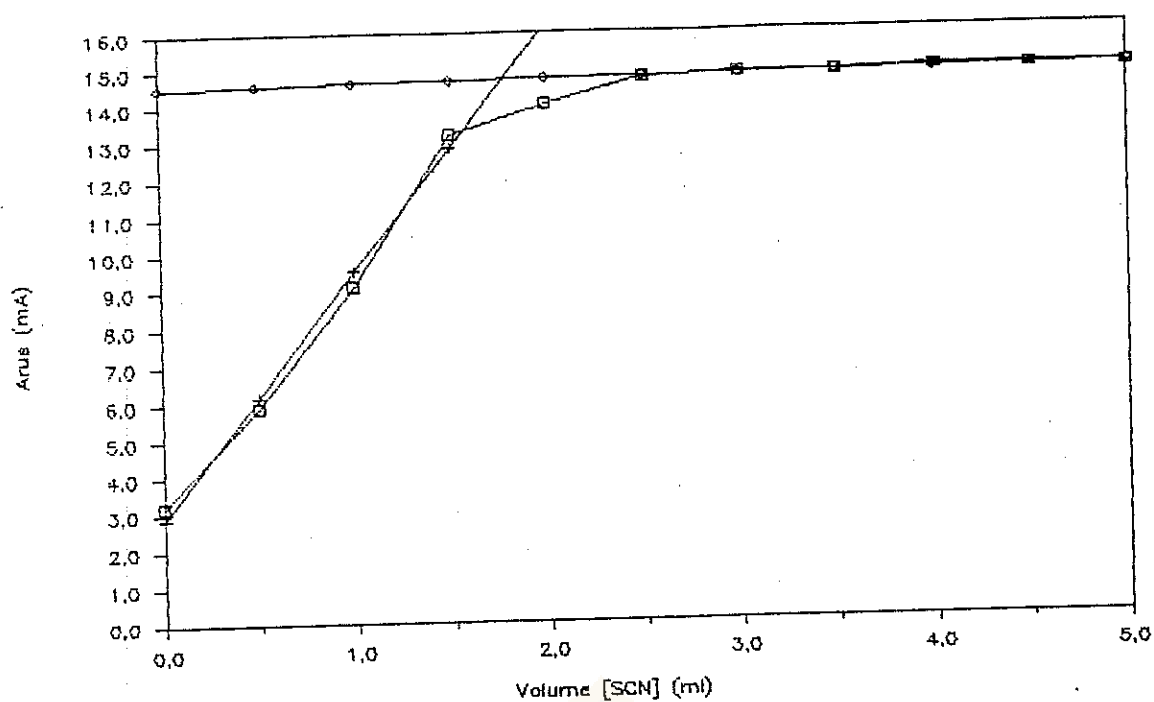
GRAFIK 2 : Penentuan [SCN⁻] Minimum (Jarak 0 cm)

Volume [SCN⁻] vs Arus

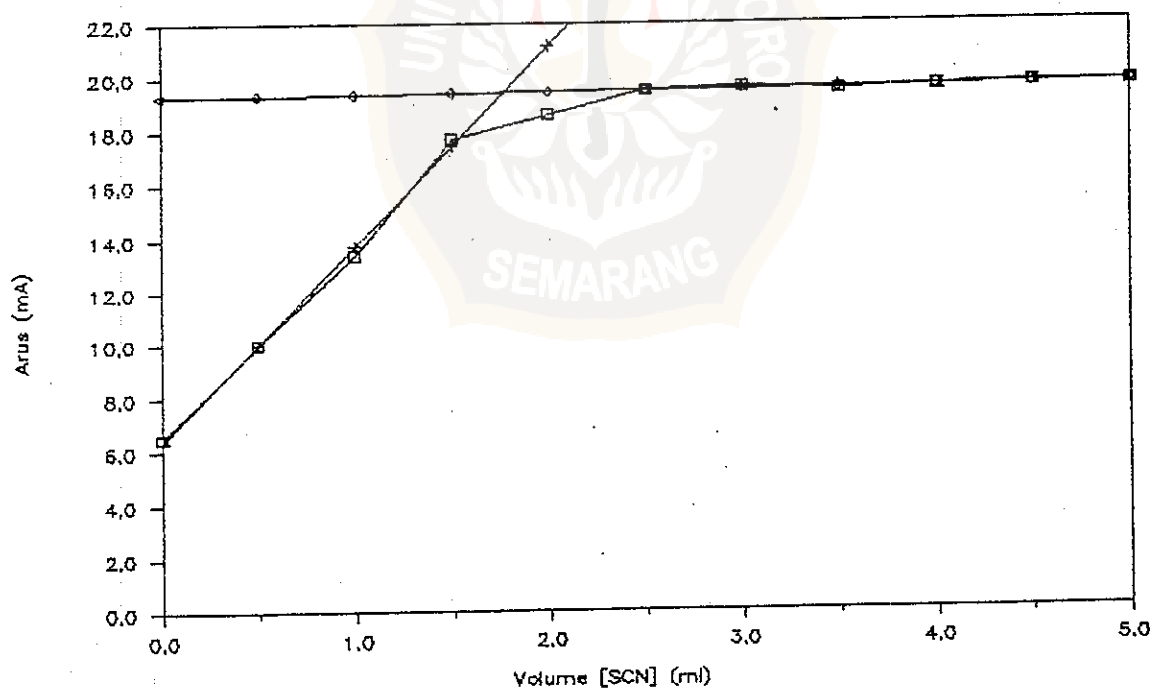


GRAFIK 3 : Penentuan [SCN⁻] Minimum (Jarak 1 cm)

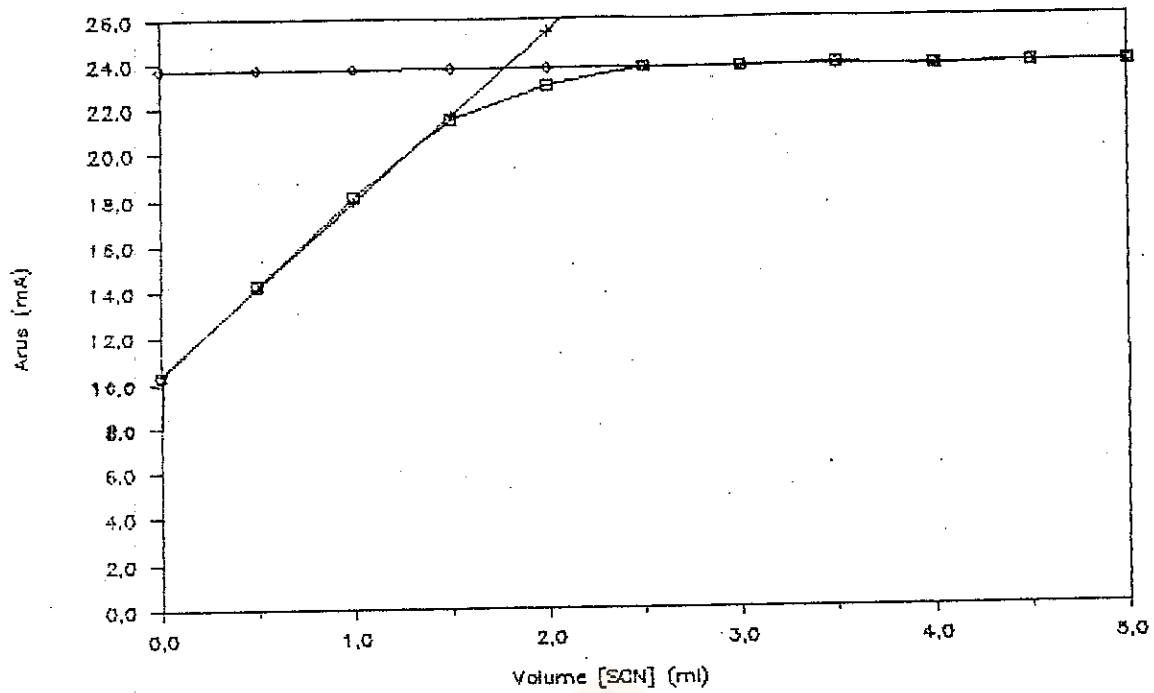
Volume [SCN⁻] vs Arus



GRAFIK 4 : Penentuan [SCN⁻] Minimum (Jarak 2 cm)
Volume [SCN⁻] vs Arus

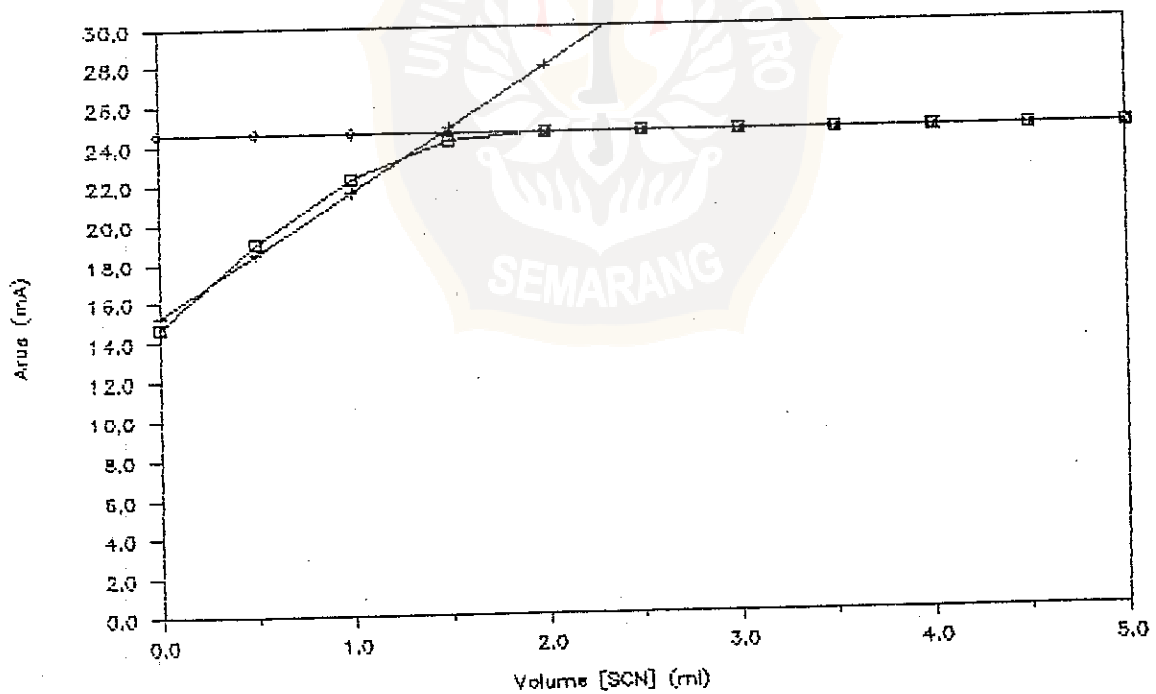


GRAFIK 5 : Penentuan [SCN⁻] Minimum (Jarak 3 cm)
Volume [SCN⁻] vs Arus



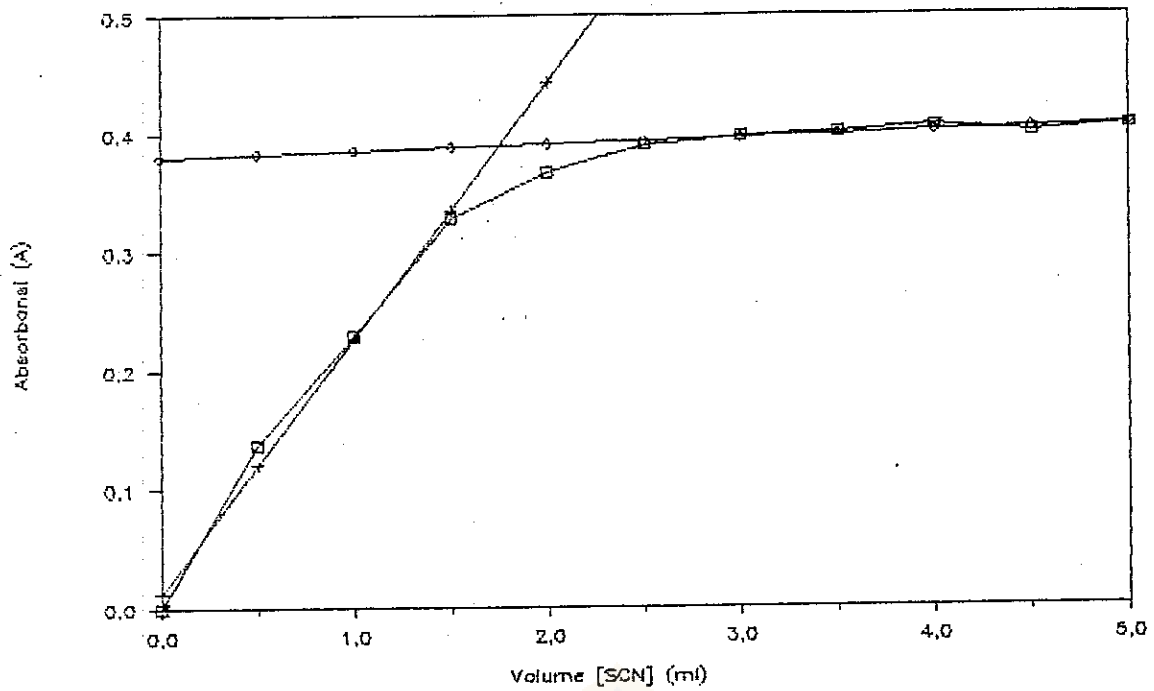
GRAFIK 6 : Penentuan [SCN⁻] Minimum (Jarak 4 cm)

Volume [SCN⁻] vs Arus

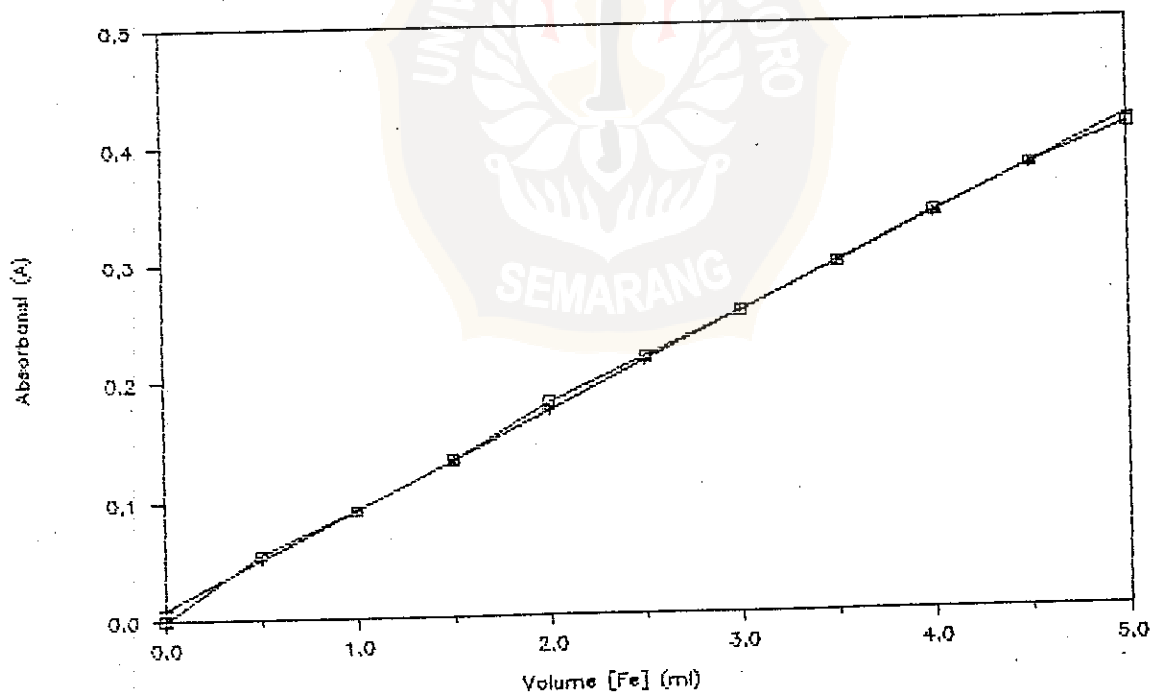


GRAFIK 7 : Penentuan [SCN⁻] Minimum (Jarak 5 cm)

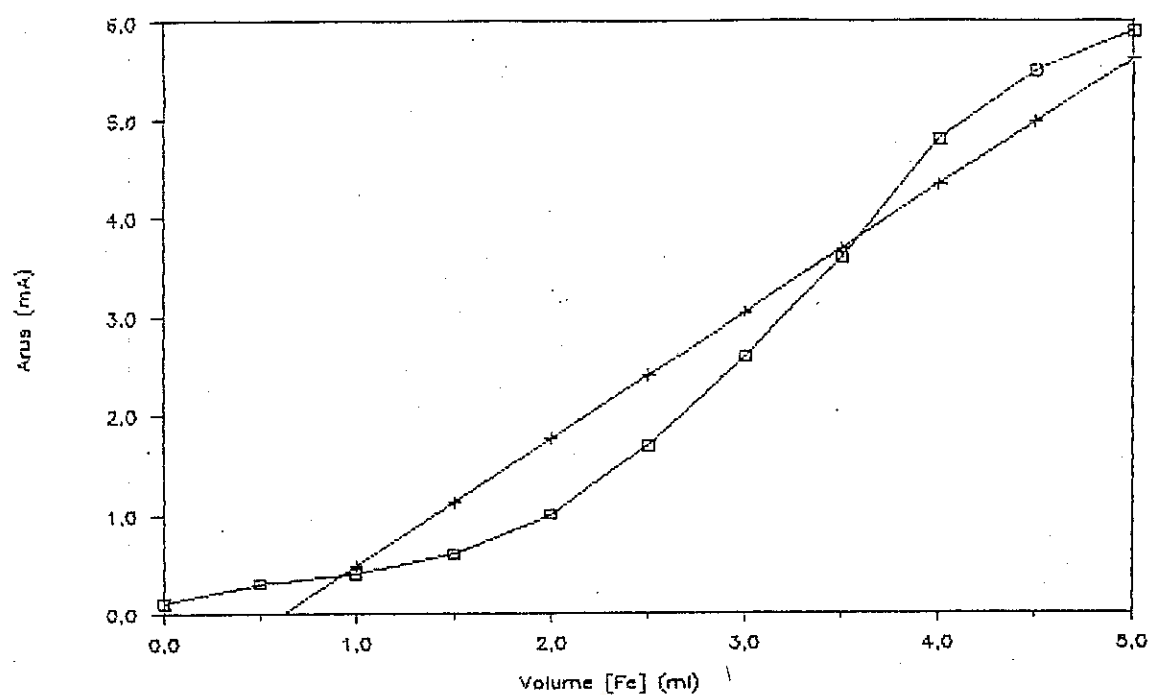
Volume [SCN⁻] vs Arus



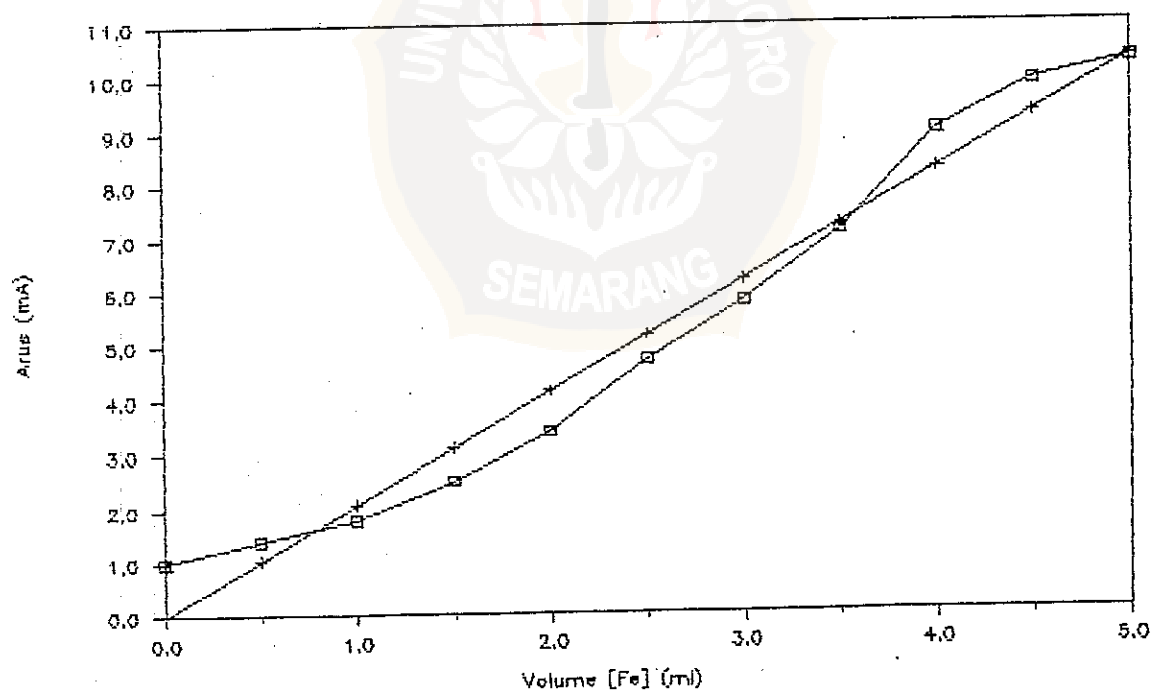
GRAFIK 8 : Penentuan [SCN⁻] Minimum (Spektronik-20)
Volume [SCN⁻] vs Absorbansi



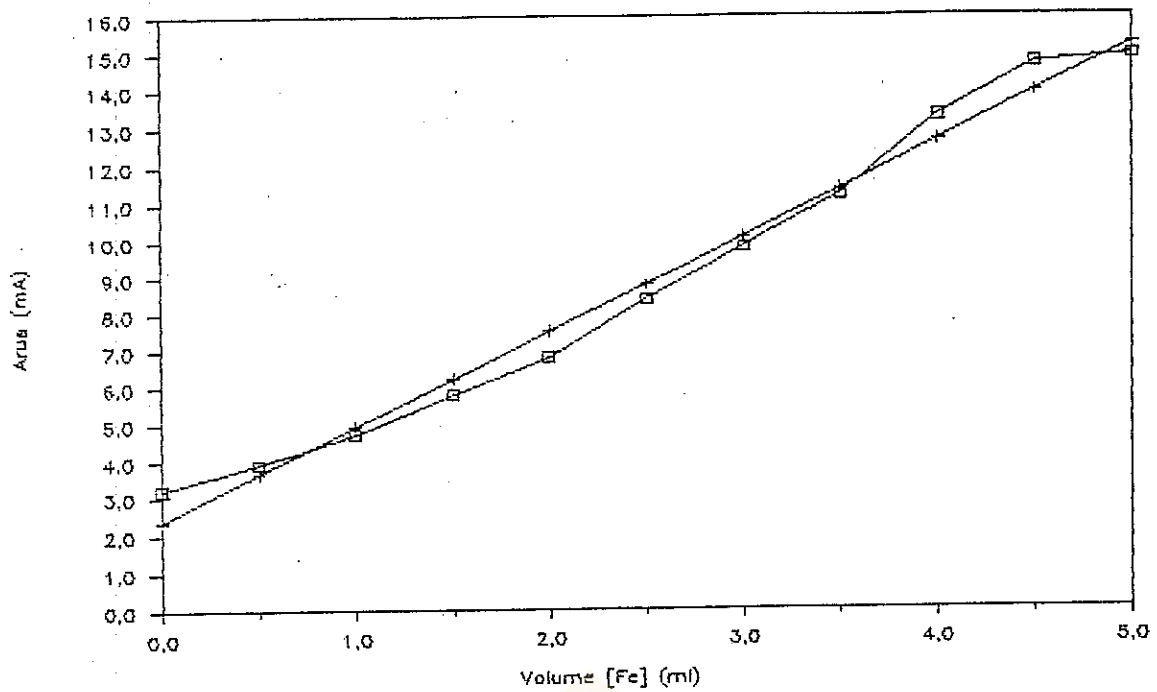
GRAFIK 9 : Kurva standar (Spektronik-20)
Volume [Fe] vs Absorbansi



GRAFIK 10 : Kurva Standar (Jarak 0 cm)
Volume [Fe] vs Arus

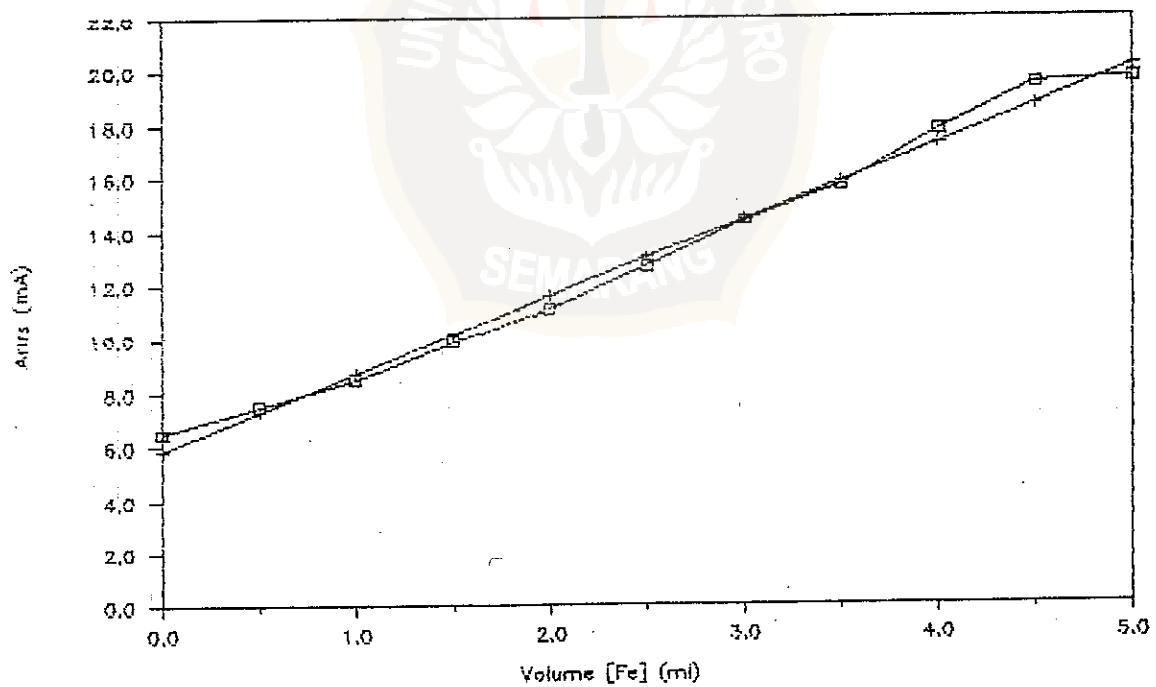


GRAFIK 11 : Kurva Standar (Jarak 1 cm)
Volume [Fe] vs Arus



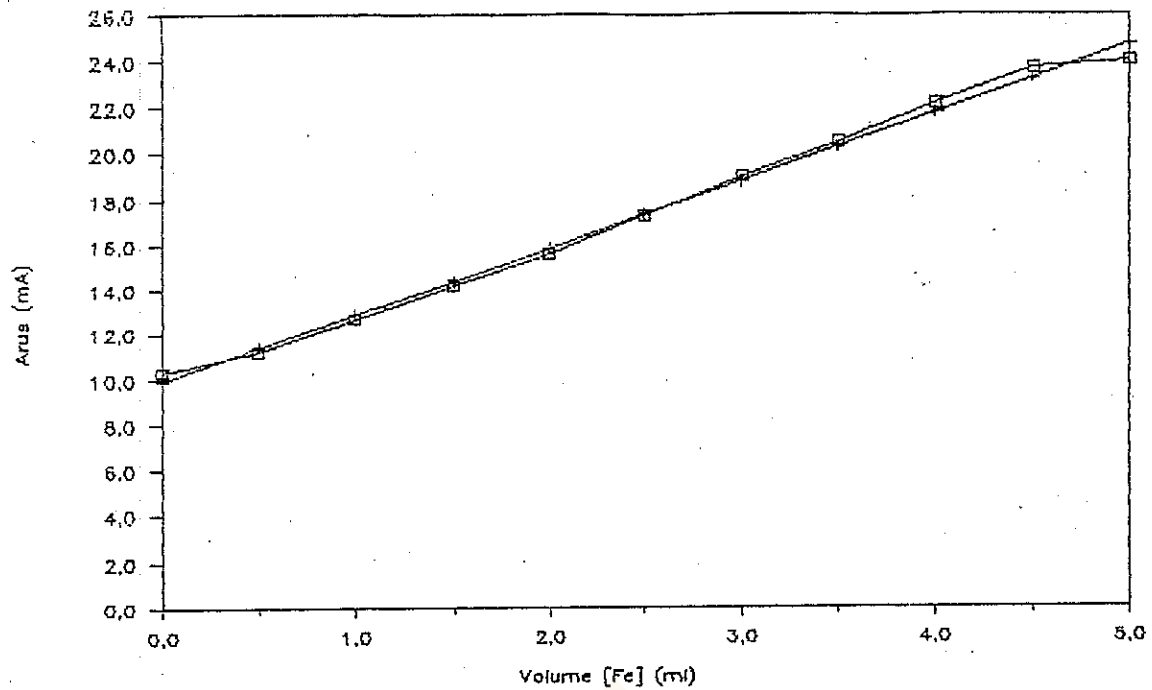
GRAFIK 12 : Kurva Standar (Jarak 2 cm)

Volume [Fe] vs Arus

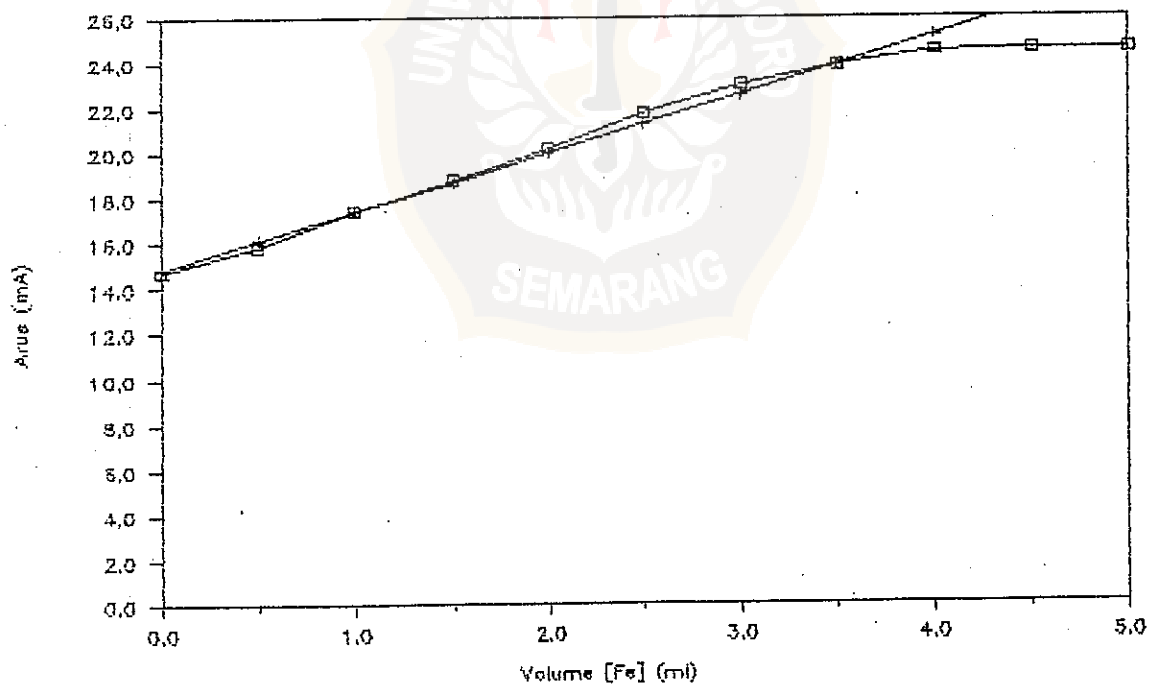


GRAFIK 13 : Kurva Standar (Jarak 3 cm)

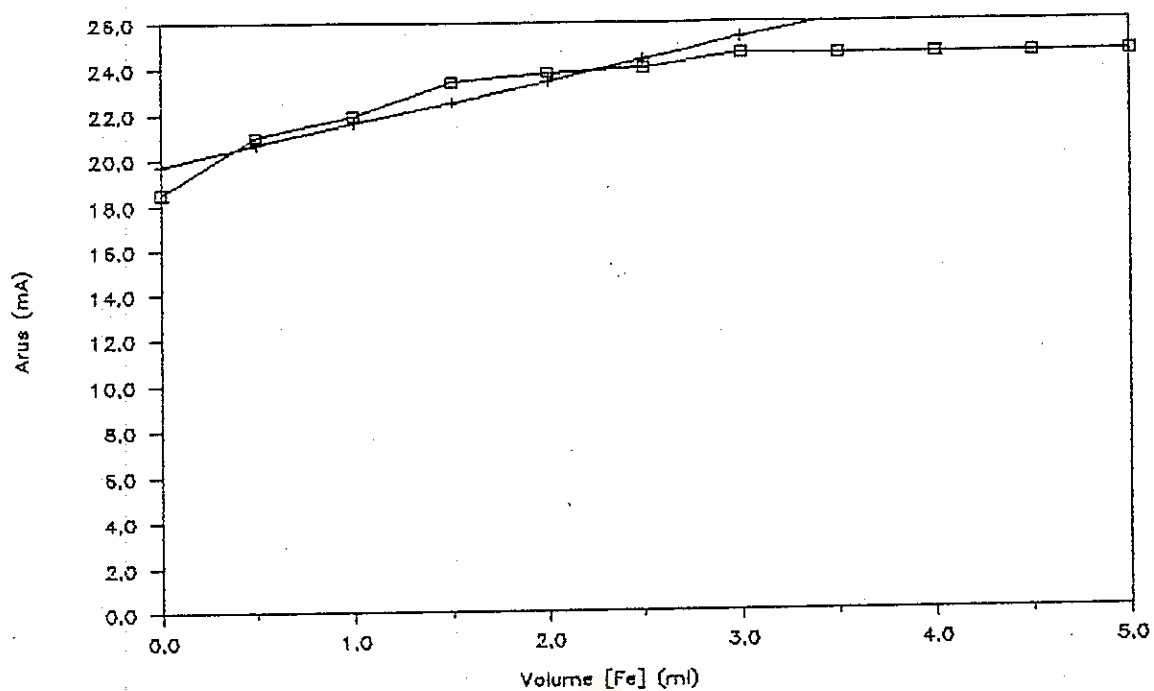
Volume [Fe] vs Arus



GRAFIK 14 : Kurva Standar (Jarak 4 cm)
Volume [Fe] vs Arus

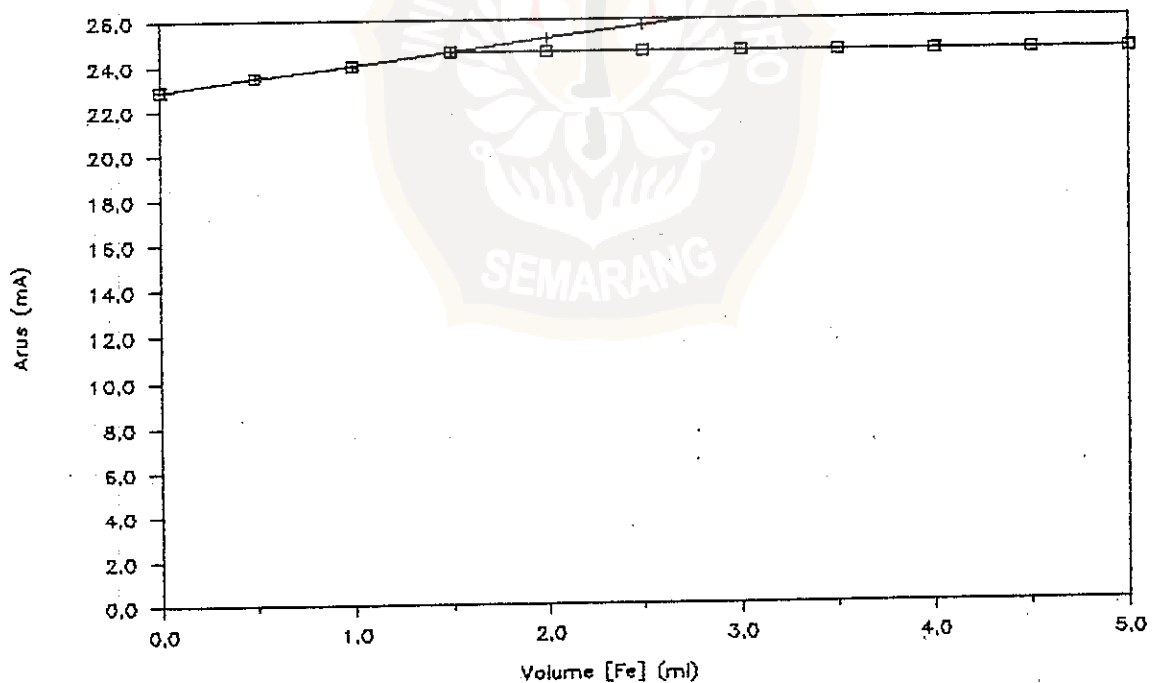


GRAFIK 15 : Kurva Standar (Jarak 5 cm)
Volume [Fe] vs Arus



GRAFIK 16 : Kurva Standar (Jarak 6 cm)

Volume [Fe] vs Arus



GRAFIK 17 : Kurva Standar (Jarak 7 cm)

Volume [Fe] vs Arus