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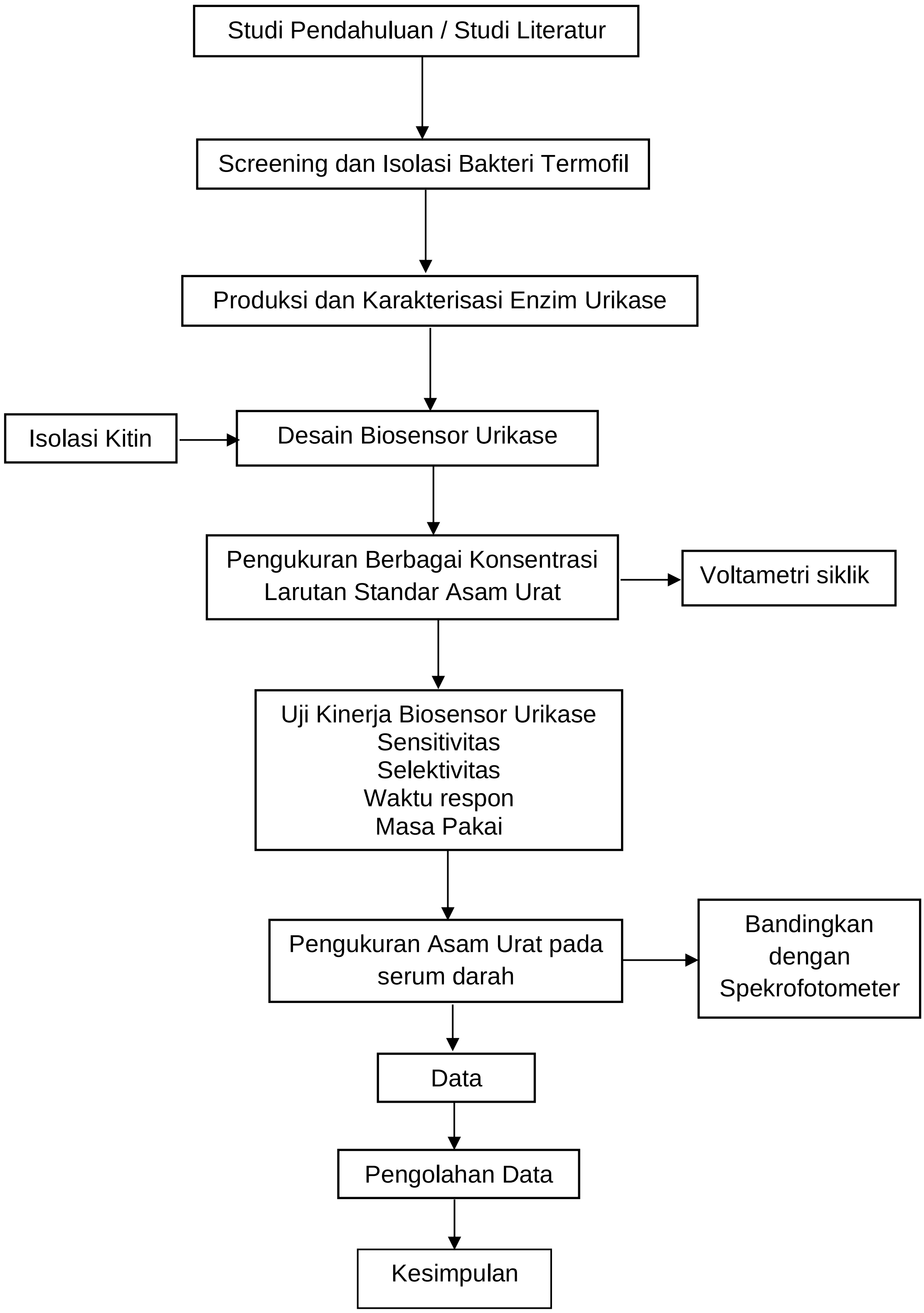
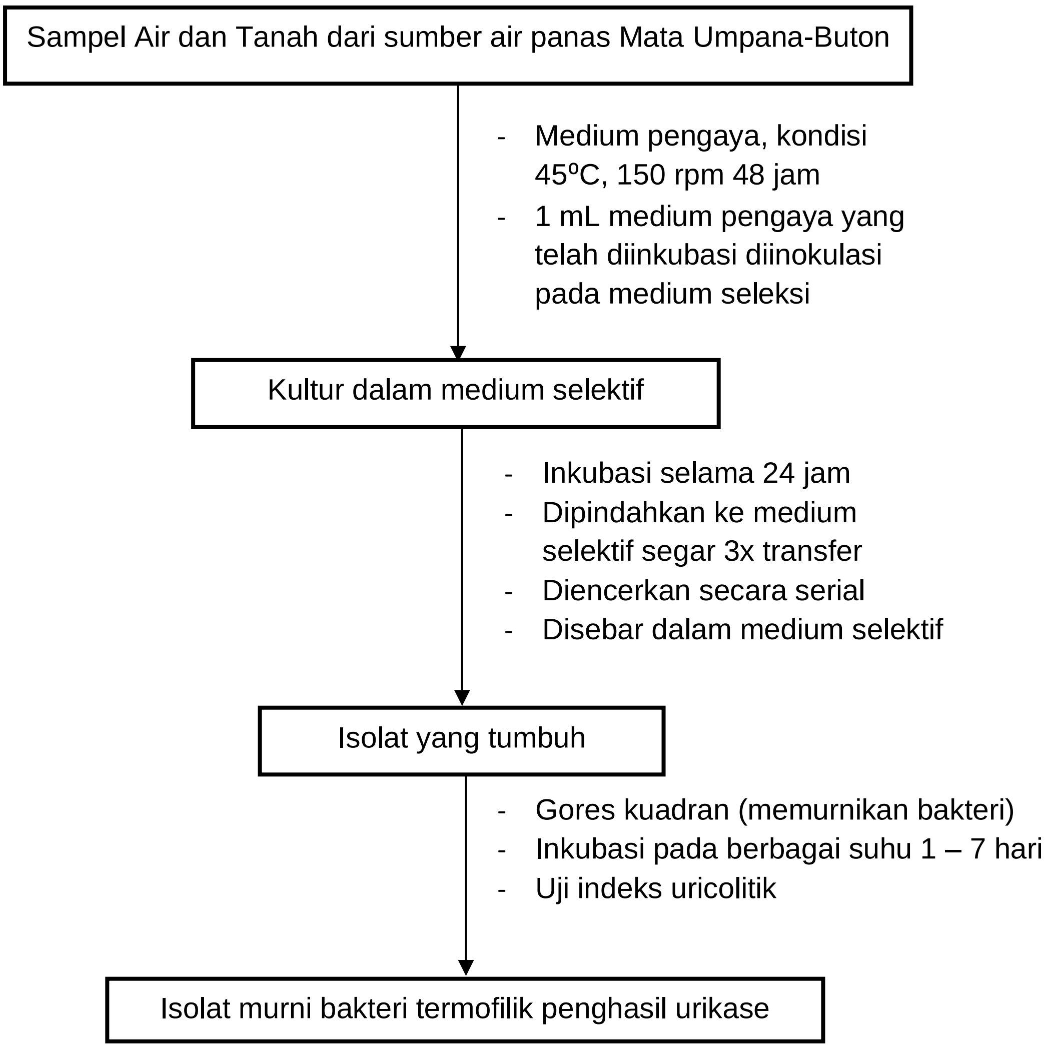
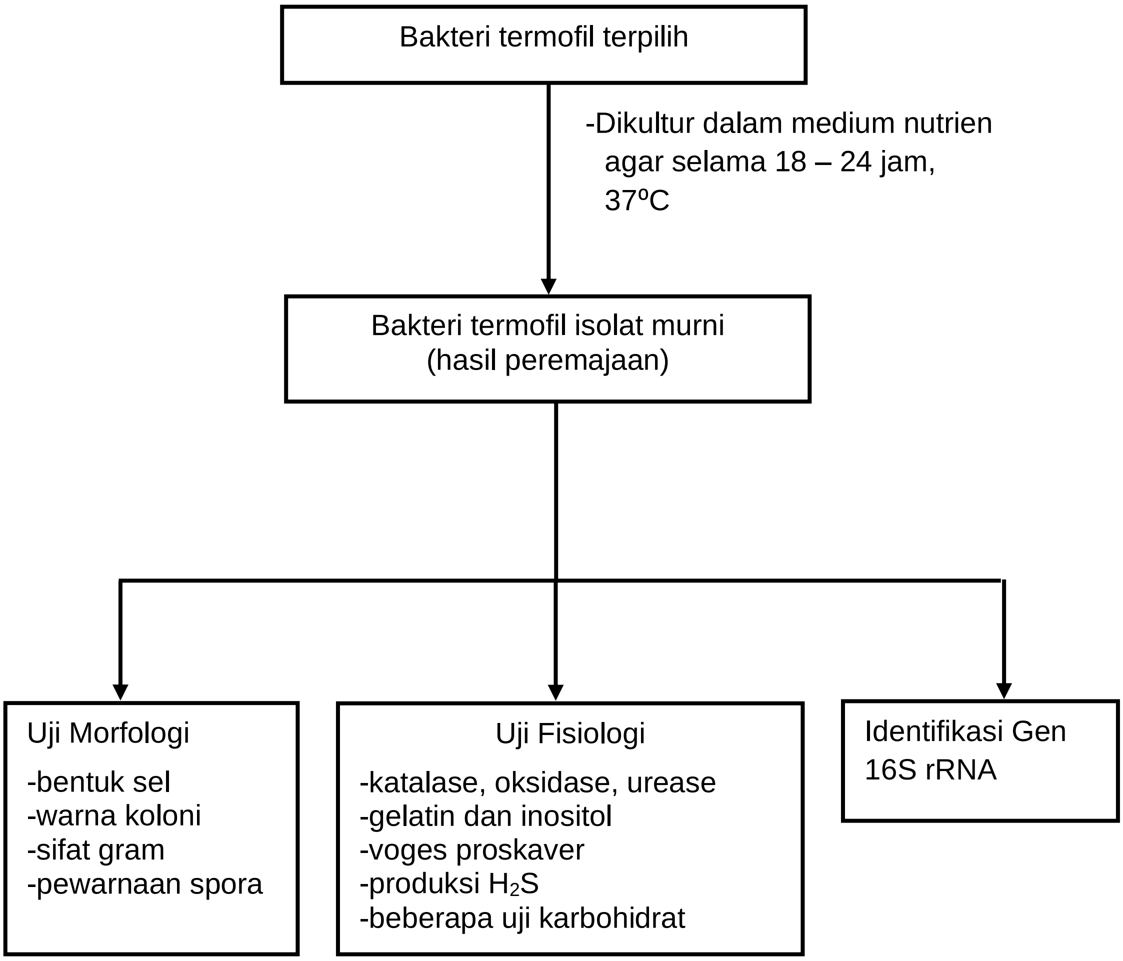
Lampiran 1. Diagram Alir Penelitian



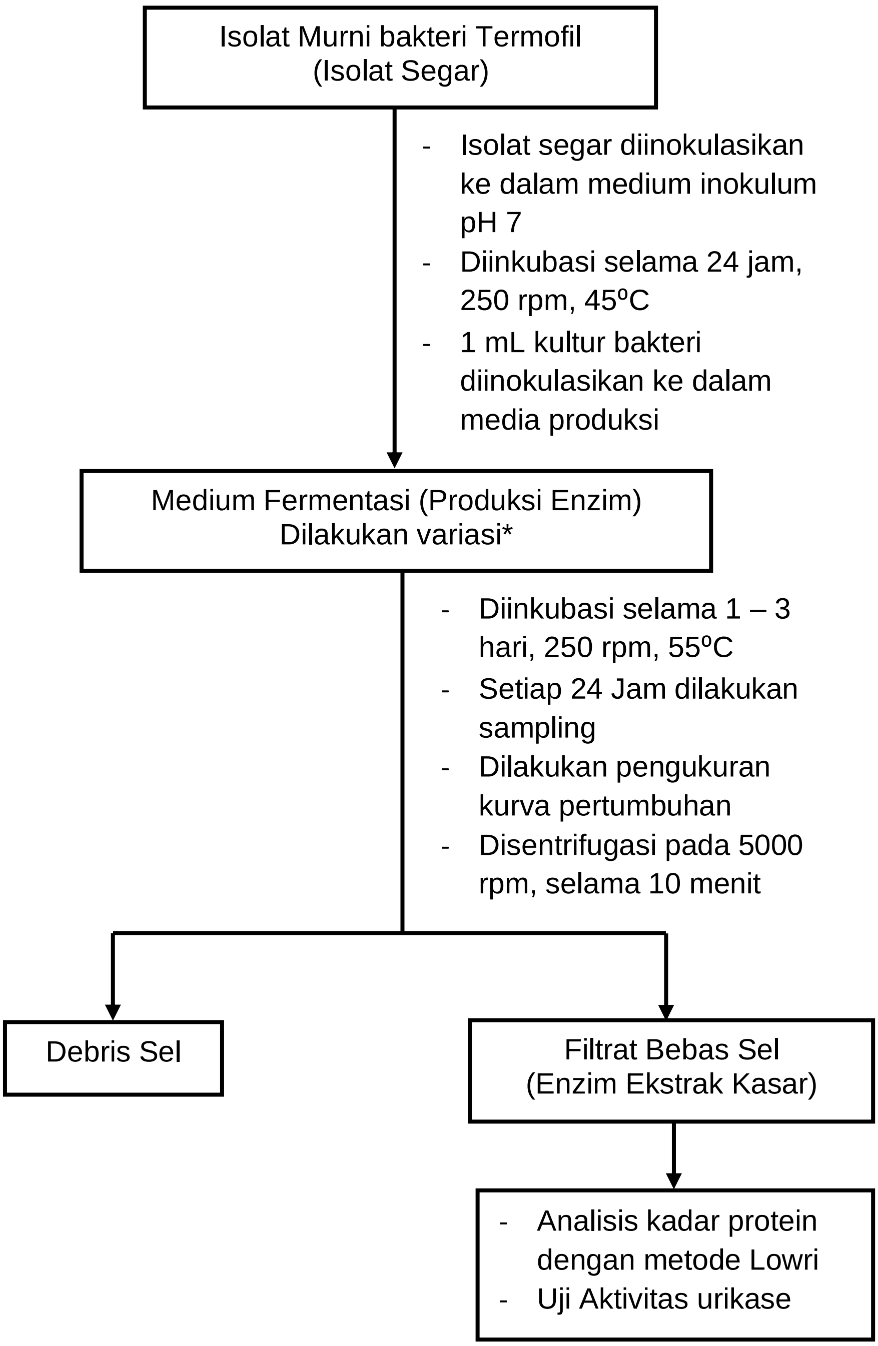
Lampiran 2. Skema skrining dan isolasi bakteri dari sumber air panas Mataumpana Kabupaten Buton Sulawesi Tenggara



Lampiran 3. Skema identifikasi morfologi, fisiologi dan gen 16S rRNA dari bakteri termofil terpilih



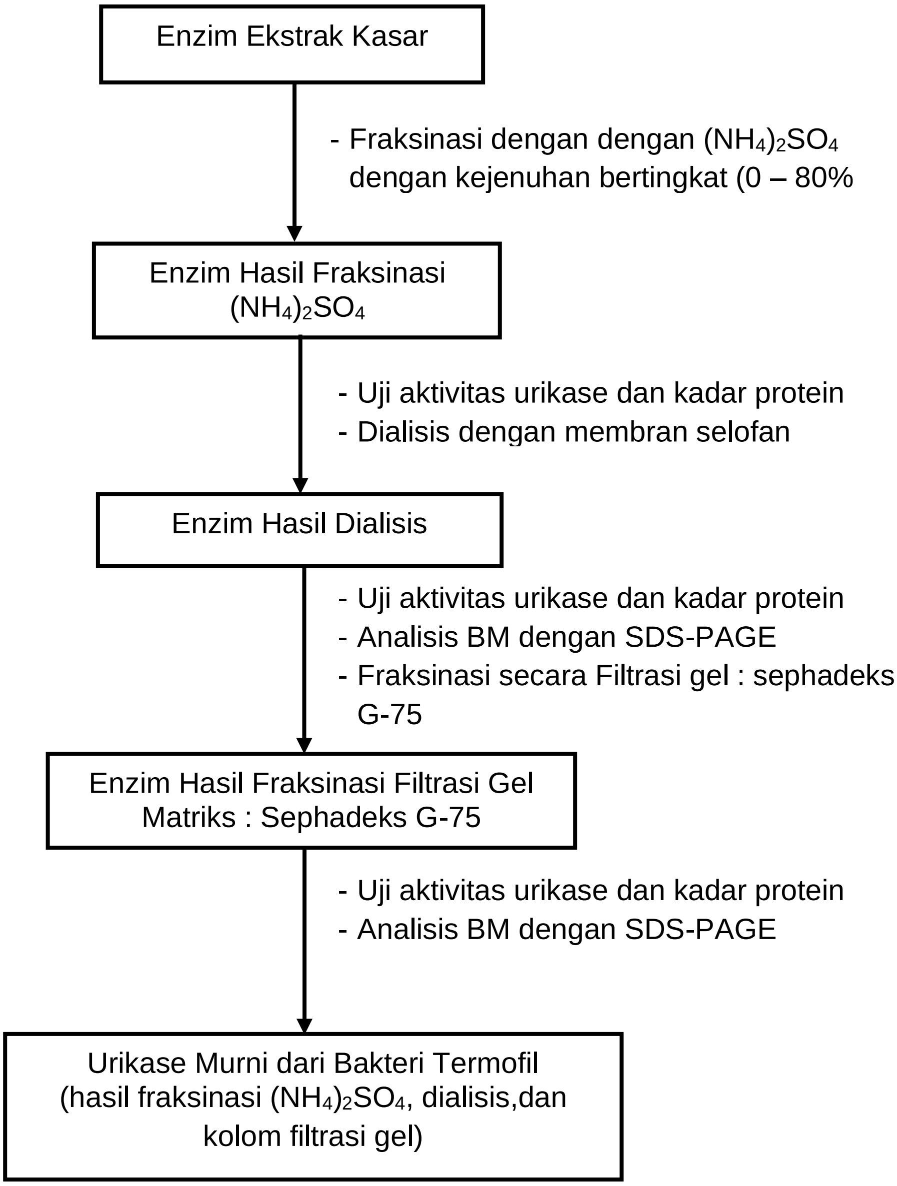
Lampiran 4. Skema Optimasi Produksi Urikase dari Bakteri Termofil



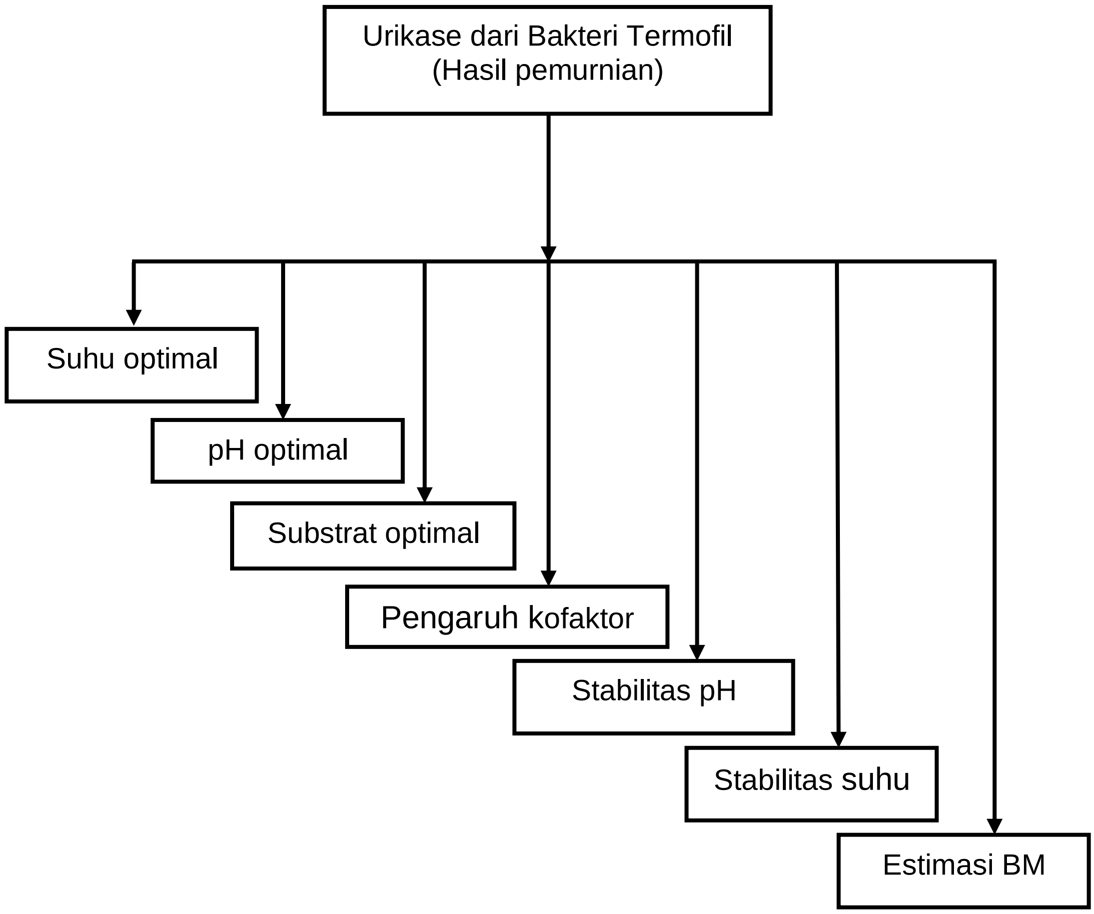
Keterangan :

*variasi waktu

Lampiran 5. Skema pemurnian urikase dari bakteri termofil



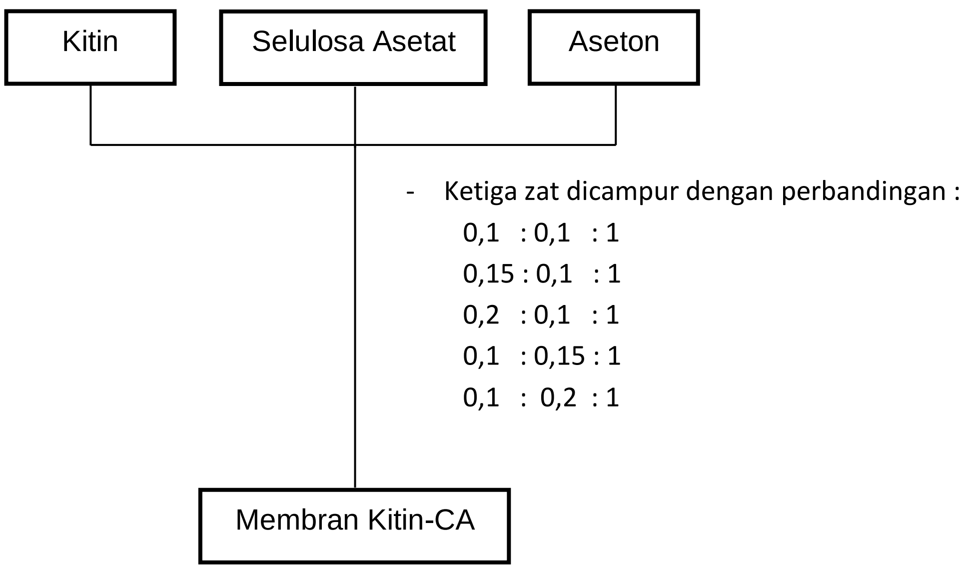
Lampiran 6. Skema karakterisasi urikase dari bakteri termofil



Lampiran 7. Tabel kejenuhan amonium sulfat pada suhu 4ºC (Bollag and Edelstein, 1991)

Kejenuhan awal dari amonium sulfat(persen 0-4ºC)	% Kejenuhan pada 0-4ºC																
	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
	Penambahan Amonium sulfat kristal (gram) pada 1 liter larutan																
0	106	134	164	194	226	258	291	326	361	398	436	476	516	559	603	650	697
5	79	108	137	166	197	229	262	296	331	368	405	444	484	526	570	615	662
10	53	81	109	139	169	200	233	266	301	337	374	412	452	493	536	581	627
15	26	54	82	111	141	172	204	237	271	306	343	381	420	460	503	547	592
20	0	27	55	83	113	143	175	207	241	276	312	349	387	427	469	512	557
25		0	27	56	84	115	146	179	211	245	280	317	355	395	436	478	522
30			0	28	56	86	117	148	181	214	249	285	323	362	402	445	488
35				0	28	57	87	118	151	184	218	254	291	329	369	410	453
40					0	29	58	89	120	153	187	222	258	296	335	376	418
45						0	29	59	90	123	156	190	226	263	302	342	383
50							0	30	60	92	125	159	194	230	268	308	348
55								0	30	61	93	127	161	197	235	273	313
60									0	31	62	95	129	164	201	239	279
65										0	31	63	97	132	168	205	244
70											0	32	65	99	134	171	209
75												0	32	66	101	137	174
80													0	33	67	103	139
85														0	34	68	105
90															0	34	70
95																0	35
100																	0

Lampiran 8 . Skema Pembuatan Membran



Lampiran 9. Skema Pembuatan Elektroda Urikase (K-CAUox)

Kawat Cu

- Di potong dengan ukuran 5 cm, disambung dengan kawat Pt ukuran 1,5 cm dengan cara pateri (solder) menggunakan kawat timah
- Digunakan tip biru sebagai badan elektroda
- Dililit kedua ujung elektroda dengan plastik parafilm

↓

Elektroda Pt (EP)

- Dimasukkan dalam tip biru dan ujungnya direkatkan dengan menggunakan parafilm
- Dicelupkan dalam larutan membran Kitin-CA
- elektroda dicelupkan ke dalam air berulang-ulang
- direndam dalam larutan glutaraldehid (25%)selama 6 jam dan dilakukan triplo untuk setiap konsentrasi glutaraldehida.
- elektroda dicuci dengan buffer fosfat pH 7,5

↓

Elektroda Pt + membran (Em)

- merendam Em dalam buffer fosfat pH 7,5 yang mengandung urikase selama 16 jam.

↓

Elektroda Urikase

-dilakukan pengukuran potensial larutan standar asam urat pada konsentrasi 10; 20; 40; 80; 160 ppm pada berbagai variasi membran, selanjutnya diukur pada pH dan suhu yang berbeda dengan -1,5 ke +2,0 kecepatan 100mV/dtk

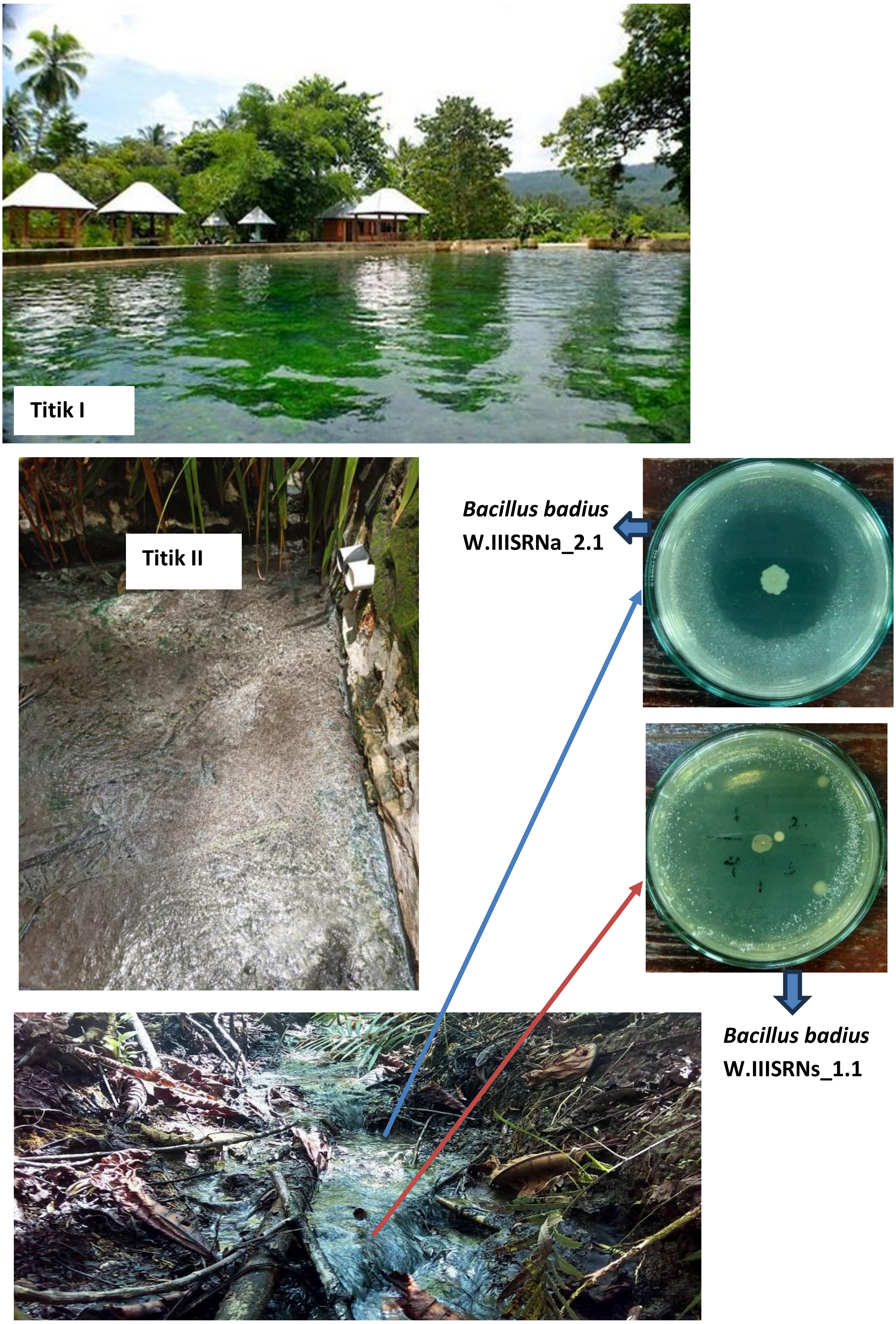
-dilakukan penentuan faktor Nerst, waktu respon, sensitivitas dan selektivitas, batas deteksi, dan usia pemakaian biosensor

-Karakterisasi membran dengan FTIR

↓

Elektroda Urikase Optimum

Lampiran 10. Lokasi Pengambilan Sampel (Sumber Air panas Mataompana, Desa Watumotobe, Kecamatan Kapuntori, Kabupaten Buton Sulawsi Tenggara)



Lampiran 11. Hasil Seleksi Isolat Bakteri Penghasil Enzim Urikase

Hasil screening bakteri penghasil enzim urikase dari 57 isolat bakteri termofil dari sumber air panas Mataumpana, Kabupaten Buton Sulawesi Tenggara

No	Sumber Isolat	Isolat	Hasil seleksi
1	Tititk I sampel air	W.IA-1	+
2	Tititk I sampel air	W.IA-2	+
3	Tititk I sampel air	W.IA-3	-
4	Tititk I sampel air	W.IA-4	+
5	Tititk I sampel air	W.IA-5	+
6	Tititk I sampel air	W.IA-6	+
7	Tititk II sampel air	W.IIA-1	+
8	Tititk II sampel air	W.IIA-2	+
9	Tititk II sampel air	W.IIA-3	+
10	Tititk II sampel air	W.IIA-4	+
11	Tititk II sampel air	W.IIA-5	+
12	Tititk III sampel air	W.IIIA-1.1	+
13	Tititk III sampel air	W.IIIA-1.2	-
14	**Tititk III sampel air**	**W.IIIA-2.1**	**+**
15	Tititk III sampel air	W.IIIA-2.2	-
16	Tititk III sampel air	W.IIIA-3	+
17	Titik IV sampel air	W.IVA-1	-
18	Titik IV sampel air	W.IVA-2.1	-
19	Titik IV sampel air	W.IVA-2.2	-
20	Titik IV sampel air	W.IVA-2.3	+
21	Titik IV sampel air	W.IVA-2.4	+
22	Titik IV sampel air	W.IVA-3	+
23	Titik IV sampel air	W.IVA-4	+
24	Titik IV sampel air	W.IVA-5	+
25	Titik IV sampel air	W.IVA-6	+
26	Titik V sampel air	W.VA-1	-
27	Titik V sampel air	W.VA-2	+
28	Titik V sampel air	W.VA-3	+
29	Titik I sampel Sedimen	W.IS-1	+
30	Titik I sampel Sedimen	W.IS-2	+
31	Titik I sampel Sedimen	W.IS-3	+
32	Titik I sampel Sedimen	W.IS-4	+
33	Titik I sampel Sedimen	W.IS-5	+
34	Titik I sampel Sedimen	W.IS-6	+
35	Titik I sampel Sedimen	W.IS-7	+
36	Titik I sampel Sedimen	W.IS-8	+
37	Titik II sampel Sedimen	W.IIS-1	+

38	Titik II sampel Sedimen	W.IIS-2	+
39	Titik II sampel Sedimen	W.IIS-3	+
40	Titik II sampel Sedimen	W.IIS-4	+
41	**Titik III sampel Sedimen**	**W.IIIS-1.1**	**+**
42	Titik III sampel Sedimen	W.IIIS-1.2	+
43	Titik III sampel Sedimen	W.IIIS-2	-
44	Titik III sampel Sedimen	W.IIIS-3.1	+
45	Titik III sampel Sedimen	W.IIIS-3.2	+
46	Titik III sampel Sedimen	W.IIIS-4	+
47	Titik IV sampel Sedimen	W.IVS-1	+
48	Titik IV sampel Sedimen	W.IVS-2	+
49	Titik IV sampel Sedimen	W.IVS-3	+
50	Titik IV sampel Sedimen	W.IVS-4	+
51	Titik IV sampel Sedimen	W.IVS-5	+
52	Titik IV sampel Sedimen	W.IVS-6	+
53	Titik IV sampel Sedimen	W.IVS-7	+
54	Titik V sampel Sedimen	W.VS-1	+
55	Titik V sampel Sedimen	W.VS-2	-
56	Titik V sampel Sedimen	W.VS-3	-
57	Titik V sampel Sedimen	W.VS-4	+

Keterangan : (+) = Menghasilkan enzim urikase
(-) = Tidak menghasilkan enzim urikase

Lampiran 12. Hasil Sequensing 16SrRNA reversed dari bakteri termofil *Bacillus altitudinis* W.IIISRNs_1.1

Descriptions | Graphic Summary | Alignments | Taxonomy

Sequences producing significant alignments

Download | Select columns | Show 100

select all 100 sequences selected

GenBank | Graphics | Distance tree of results | MSA Viewer

Description	Scientific Name	Max Score	Total Score	Query Cover	E value	Per. Ident	Acc. Len	Accession
Bacillus pumilus strain 15.2' 16S ribosomal RNA gene, partial sequence	Bacillus pumilus	1365	1365	50%	0.0	90.23%	1418	KU236485.1
Bacillus sp. (in: Bacteria) strain UB02 16S ribosomal RNA gene, partial sequence	Bacillus sp. (in: Bacteria)	1365	1365	50%	0.0	90.23%	1371	MN626632.1
Bacillus sp. TN32 partial 16S rRNA gene, strain TN32	Bacillus sp. TN32	1363	1363	52%	0.0	89.37%	1125	LN833466.1
Bacillus aerius strain LGS-1 16S ribosomal RNA gene, partial sequence	Bacillus aerius	1363	1363	55%	0.0	88.22%	1280	KM401863.1
Bacillus aerius strain BH74 16S ribosomal RNA gene, partial sequence	Bacillus aerius	1362	1362	50%	0.0	90.13%	1426	OM281421.1
Bacillus pumilus strain GR25 16S ribosomal RNA gene, partial sequence	Bacillus pumilus	1362	1362	50%	0.0	90.13%	1448	KC771040.1
Bacillus stratosphericus strain SN2-11.1 16S ribosomal RNA gene, partial sequence	Bacillus stratosphericus	1360	1360	50%	0.0	90.13%	1422	MT071688.1
Bacillus altitudinis strain SN2-1 16S ribosomal RNA gene, partial sequence	Bacillus altitudinis	1360	1360	50%	0.0	90.13%	1451	MT071681.1
Bacillus stratosphericus strain SN1-16.2 16S ribosomal RNA gene, partial sequence	Bacillus stratosphericus	1360	1360	50%	0.0	90.13%	1452	MT071675.1
Bacillus altitudinis strain SN1-16.1 16S ribosomal RNA gene, partial sequence	Bacillus altitudinis	1360	1360	50%	0.0	90.13%	1450	MT071674.1
Bacillus altitudinis strain SK3-5.1 16S ribosomal RNA gene, partial sequence	Bacillus altitudinis	1360	1360	50%	0.0	90.13%	1449	MN421036.1
Bacillus sp. (in: Bacteria) strain RL55 16S ribosomal RNA gene, partial sequence	Bacillus sp. (in: Bacteria)	1360	1360	50%	0.0	90.13%	1424	MN234067.1
Bacillus altitudinis strain KR6 16S ribosomal RNA gene, partial sequence	Bacillus altitudinis	1360	1360	50%	0.0	90.13%	1344	MK554505.1
Bacillus stratosphericus strain APBSMLB121 16S ribosomal RNA gene, partial sequence	Bacillus stratosphericus	1360	1360	50%	0.0	90.12%	1479	MG705900.1
Bacillus altitudinis strain 3.3 16S ribosomal RNA gene, partial sequence	Bacillus altitudinis	1360	1360	50%	0.0	90.13%	1420	KU236482.1
Bacillus pumilus strain 20.2' 16S ribosomal RNA gene, partial sequence	Bacillus pumilus	1360	1360	50%	0.0	90.13%	1419	KU236480.1
Bacillus altitudinis strain GR-8, complete genome	Bacillus altitudinis	1360	10786	50%	0.0	90.13%	3674849	CP009108.1
Bacillus altitudinis strain Cu1 16S ribosomal RNA gene, partial sequence	Bacillus altitudinis	1360	1360	50%	0.0	90.13%	1313	KP699784.1
Bacillus altitudinis gene for 16S ribosomal RNA, partial sequence, strain: JKCM-N-2B	Bacillus altitudinis	1360	1360	50%	0.0	90.13%	1452	LC010676.1
Bacillus stratosphericus strain IARI-MI-1 16S ribosomal RNA gene, partial sequence	Bacillus stratosphericus	1360	1360	50%	0.0	90.13%	1463	KJ572539.1

Lampiran 13. Hasil Sequensing 16SrRNA reversed dar bakteri termofil *Bacillus altitudinis* W.IIISRNa_2.1

Descriptions | Graphic Summary | Alignments | Taxonomy

Sequences producing significant alignments

Download | Select columns | Show 100

select all *100 sequences selected*

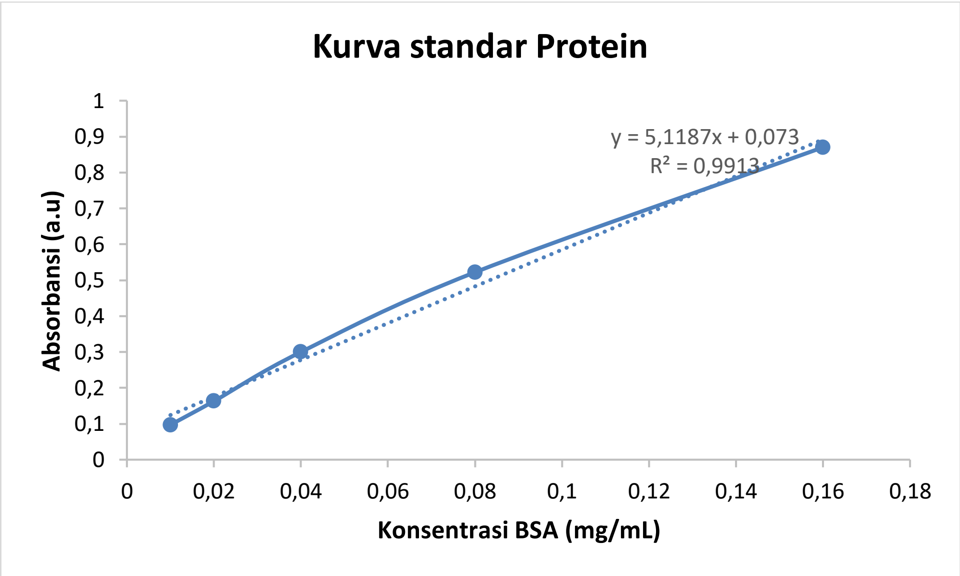
GenBank | Graphics | Distance tree of results | MSA Viewer

Description	Scientific Name	Max Score	Total Score	Query Cover	E value	Per. Ident	Acc. Len	Accession
Bacillus wudalianchiensis strain CIRRC/R1 16S ribosomal RNA gene, partial sequence	Bacillus wudalianchiensis	2246	2246	100%	0.0	98.97%	1529	MK937834.1
Bacillus badius strain SB-7 16S ribosomal RNA gene, partial sequence	Bacillus badius	2246	2246	100%	0.0	98.97%	1489	MF321853.1
Bacillus badius strain JU13 16S ribosomal RNA gene, partial sequence	Bacillus badius	2246	2246	100%	0.0	98.97%	1391	KX230141.1
Bacillus badius partial 16S rRNA gene, strain DSM 30822	Bacillus badius	2246	2246	100%	0.0	98.97%	1544	LT549008.1
Bacillus badius strain ACCC60106 16S ribosomal RNA gene, partial sequence	Bacillus badius	2246	2246	100%	0.0	98.97%	1517	MZ067936.1
Bacillus badius strain F 16S ribosomal RNA gene, partial sequence	Bacillus badius	2246	2246	100%	0.0	98.97%	1444	KJ000879.1
Bacillus badius strain NBPM-293 chromosome, complete genome	Bacillus badius	2246	22416	100%	0.0	98.97%	3868812	CP082363.1
Bacillus badius strain SCTB117 16S ribosomal RNA gene, partial sequence	Bacillus badius	2246	2246	100%	0.0	98.97%	1478	JN650282.1
Bacillus badius strain KO_CM52 16S ribosomal RNA gene, partial sequence	Bacillus badius	2246	2246	100%	0.0	98.97%	1331	GQ497939.1
Bacillus sp. ES-SL-2 16S ribosomal RNA gene, partial sequence	Bacillus sp. ES-SL-2	2246	2246	100%	0.0	98.97%	1517	FJ529039.1
Bacillus sp. CC 3 16S ribosomal RNA gene, partial sequence	Bacillus sp. CC 3	2246	2246	100%	0.0	98.97%	1432	EU716646.1
Bacillus badius strain 12ELE1 16S ribosomal RNA gene, partial sequence	Bacillus badius	2242	2242	100%	0.0	98.89%	1520	KJ722449.1
Bacillus badius strain SY29 16S ribosomal RNA gene, partial sequence	Bacillus badius	2242	2242	100%	0.0	98.89%	1446	FJ494699.1
Bacillus badius strain NBRC 15713 16S ribosomal RNA, partial sequence	Bacillus badius	2242	2242	100%	0.0	98.89%	1481	NR_112633.1
Bacillus sp. (in: Bacteria) strain D1P012 16S ribosomal RNA gene, partial sequence	Bacillus sp. (in: Bacteria)	2241	2241	100%	0.0	98.89%	1462	MN989044.1
Bacillus badius strain SCSB-17 16S ribosomal RNA gene, partial sequence	Bacillus badius	2241	2241	100%	0.0	98.89%	1481	MK995595.1
Bacillus badius strain B19 16S ribosomal RNA gene, partial sequence	Bacillus badius	2241	2241	100%	0.0	98.89%	1465	MG552833.1
Bacillus badius strain 2017G 16S ribosomal RNA gene, partial sequence	Bacillus badius	2241	2241	100%	0.0	98.89%	1393	MK355611.1
Bacillus sp. (in: Bacteria) strain LQ65 16S ribosomal RNA gene, partial sequence	Bacillus sp. (in: Bacteria)	2241	2241	100%	0.0	98.89%	1451	MG025799.1
Bacillus badius strain FJAT-47859 16S ribosomal RNA gene, partial sequence	Bacillus badius	2241	2241	100%	0.0	98.89%	1433	MG651261.1

Lampiran 14. Hasil Pengukuran dan Kurva standar protein (crude enzim, dialisis dan Hasil kromatografi kolom Sephadeks G75)

a. Standar protein crude enzim dan hasil dialisis

No	Konsentrasi BSA (mg/mL)	Absorbansi pada panjang gelombang 670 nm
1	0,01	0,097
2	0,02	0,163
3	0,04	0,3
4	0,08	0,522
5	0,16	0,87



Dari hasil regresi kurva larutan standar diperoleh persamaan garis : y = 5,1187x + 0,073. Maka konsentrasi protein diperoleh dengan cara:

Kadar protein $= \frac{y-b}{a}$ x fp

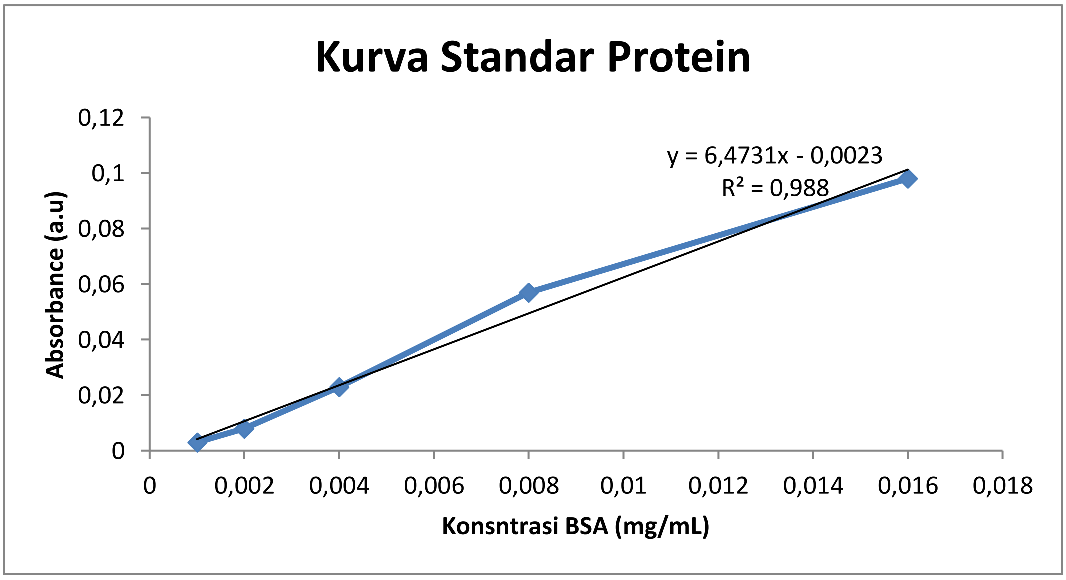
Kadar protein $= \frac{0,317 - 0,073}{5,1187}$ x 100 = 4,7715 mg/mL

Aktivitas dan konsentrasi protein crude enzim tiap waktu inkubasi

No	Waktu Inkubasi (Jam)	Konsentrasi Protein (mg/mL)	Activitas (U/mL)
1	0	5,5782	0,2823
2	6	5,4995	0,333
3	12	4,7715	0,4928
4	18	9,2379	0,4361
5	24	4,2205	0,3601
6	30	5,0273	0,3269
7	36	4,8305	0,3119
8	42	5,0076	0,2595
9	48	4,4763	0,1851
10	54	4,5943	0,1606
11	60	3,9647	0,0465

b. Standar protein hasil Kromatografi filtrasi gel Sephadeks G75

No	Konsentrasi BSA (mg/mL)	Absorbansi pada panjang gelombang 670 nm
1	0,001	0,003
2	0,002	0,008
3	0,004	0,023
4	0,008	0,057
5	0,016	0,098



Hasil Pengukuran Konsentrasi Protein dan aktivitas enzim urikase hasil fraksinasi kromatografi gel Sephadeks G-75

No	Sampel	Aktivitas (U/mL)	Konsentrasi protein (mg/mL)	Aktivitas spesifik (U/mg)
1	F1	0,0592	0	0
2	F2	0,1289	0	0
3	F3	0,1302	0	0
4	F4	0,2229	0,0000	0
5	F5	0,4385	0,0140	31,2991
6	F6	0,3913	0,0455	8,5924
7	F7	0,3892	0,0543	7,1689
8	F8	0,3584	0,0473	7,5788
9	F9	0,3301	0,0263	12,5657
10	F10	0,3366	0,0193	17,4676
11	F11	0,3558	0,0613	5,8042
12	F12	**0,4669**	**0,0473**	**9,8731**
13	F13	0,0489	0,0578	0,8460
14	F14	0,0740	0,0876	0,8450
15	F15	0,0829	0,0981	0,8452
16	F16	0,0873	0,1033	0,8449
17	F17	0,0711	0,0841	0,8457
18	F18	0,0577	0,0683	0,8448
19	F19	0,0785	0,0928	0,8457
20	F20	0,0607	0,0718	0,8453
21	F21	0,0474	0,0560	0,8458
22	F22	0,0518	0,0613	0,8450
23	F23	0,0607	0,0718	0,8453
24	F24	0,4101	0,0736	5,5750
25	F25	0,3959	0,1244	3,1838
26	F26	0,3024	0,0998	3,0291
27	F27	0,2789	0,1279	2,1815
28	F28	0,259	0,0596	4,3493
29	F29	0,2863	0,0736	3,8921
30	F30	0,3132	0,1454	2,1545
31	F31	0,4012	0,1068	3,7551
32	F32	0,2667	0,1436	1,8570
33	F33	0,2498	0,0841	2,9713
34	F34	0,2641	0,0666	3,9684
35	F35	0,2979	0,0350	8,5041
36	F36	0,2832	0,0718	3,9437
37	F37	0,3736	0,0228	16,4076

38	F38	0,2992	0,0018	170,9714
39	F39	0,3056	0,0403	7,5869
40	F40	0,2815	0,0053	53,6190
41	F41	0,3216	0,0000	0
42	F42	0,273	0,0368	7,4225
43	F43	0,2333	0,4063	0,5742
44	F44	0,273	0,0806	3,3888
45	F45	0,1327	0,0123	10,8236
46	F46	0,1293	0,0035	36,9429

Ket : F= fraksi ke

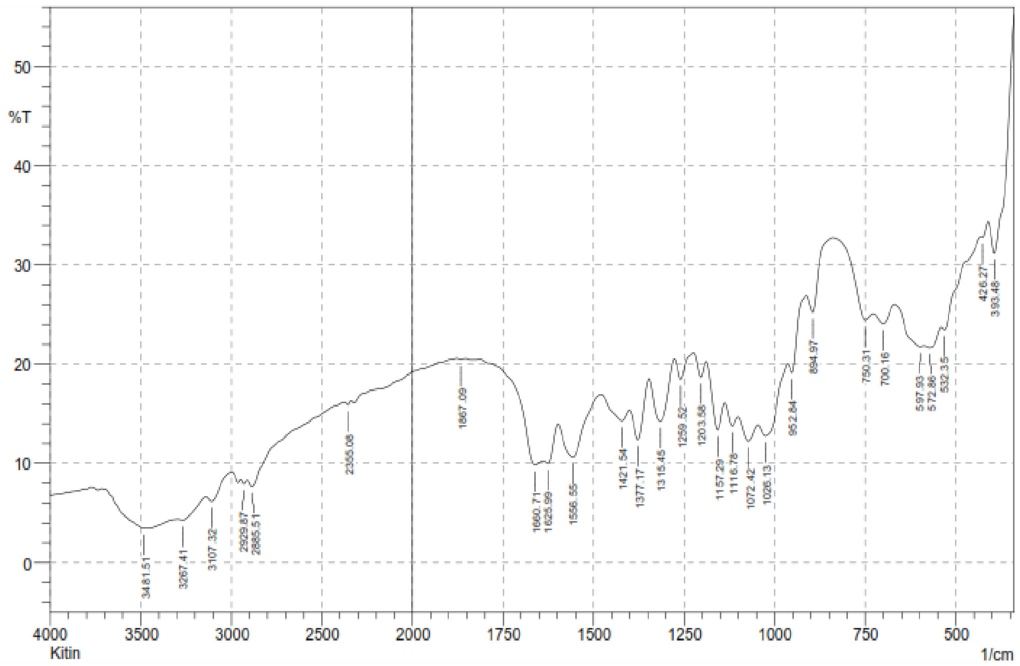
Contoh perhitungan aktivitas spesifik yaitu :

$$\text{Aktivitas spesifik} = \frac{Aktivitas}{\text{Konsentrasi Protein}}$$

$$= \frac{0{,}4669}{0{,}0473}$$

= 9,8731 U/mg

Lampiran 15. Spektrum kitin dari limbah udang putih hasil analisis FTIR



No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	393.48	31.196	8.283	410.84	339.47	30.118	4.594
2	426.27	32.803	0.357	430.13	412.77	8.277	0.066
3	532.35	23.493	0.87	540.07	432.05	58.935	0.232
4	572.86	21.677	0.731	586.36	542	28.98	0.488
5	597.93	21.776	0.572	669.3	588.29	51.339	0.907
6	700.16	24.083	1.454	727.16	671.23	33.88	0.746
7	750.31	24.465	2.129	837.11	729.09	58.911	1.019
8	894.97	25.245	3.039	912.33	839.03	38.888	0.849
9	952.84	19.148	2.25	962.48	914.26	30.801	0.698
10	1026.13	12.785	2.559	1045.42	964.41	66.256	3.415
11	1072.42	12.244	2.004	1099.43	1047.35	45.94	1.861
12	1116.78	13.781	1.491	1138	1101.35	30.69	0.842
13	1157.29	13.383	4.179	1188.15	1139.93	38.707	2.736
14	1203.58	18.692	1.922	1222.87	1190.08	23.149	0.693
15	1259.52	18.485	2.246	1276.88	1224.8	36.473	1.002
16	1315.45	14.259	5.175	1346.31	1278.81	53.03	5.133
17	1377.17	12.393	4.373	1400.32	1348.24	43.469	3.295
18	1421.54	14.301	1.453	1477.47	1402.25	61.529	1.868
19	1556.55	10.625	4.357	1597.06	1479.4	102.968	7.399
20	1625.99	9.973	1.515	1639.49	1598.99	38.452	1.246
21	1660.71	9.844	1.713	1786.08	1641.42	117.986	1.515
22	1867.09	20.467	0.112	1876.74	1855.52	14.592	0.025
23	2355.08	15.899	0.338	2372.44	2339.65	26.04	0.152
24	2885.51	7.689	0.966	2910.58	2374.37	480.674	1.63
25	2929.87	7.925	0.409	2947.23	2912.51	37.854	0.382
26	3107.32	6.189	1.011	3140.11	2999.31	158.784	3.136
27	3267.41	4.293	0.489	3296.35	3142.04	199.165	3.51
28	3481.51	3.464	0.289	3701.4	3466.08	310.109	6.061

Comment;

Kitin

Date/Time; 9/21/2022 10:46:19 AM

No. of Scans;

Resolution;

Apodization;

Lampiran 16. Hasil Pemeriksaan Penetapan Berat Molekul Protein Menggunakan Metode SDS PAGE Commassie Briliant Blue & Silver Stain

KEMENTERIAN AGAMA
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FAKULTAS SAINS DAN TEKNOLOGI
JURUSAN KIMIA - LABORATORIUM BIOKIMIA
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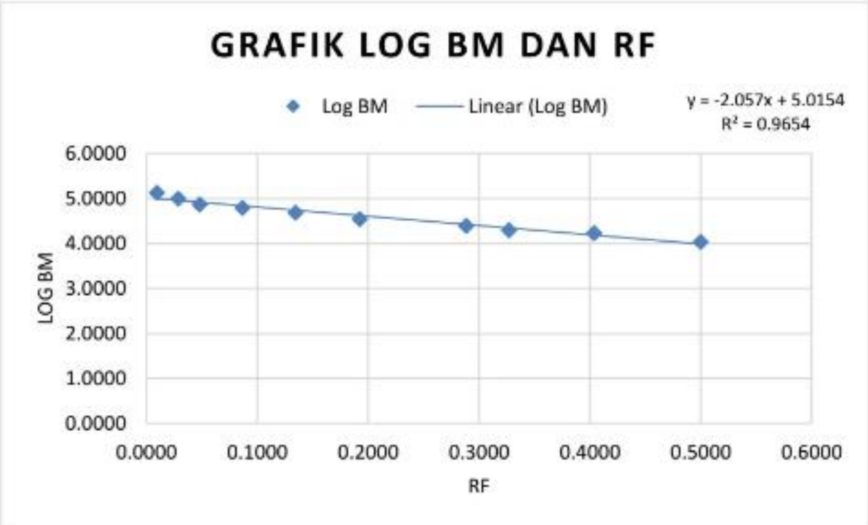
Kampus II : Jl. H.M. Yasin Limpo No.36, Romangpolong-Gowa . ☎(0411) 841879, Fax. (0411) 8221400

Tabel 2. Rf Marker Protein 2 (*BlueEye Prestained Protein Marker Jena Bioscience Cat No. PS-104*)

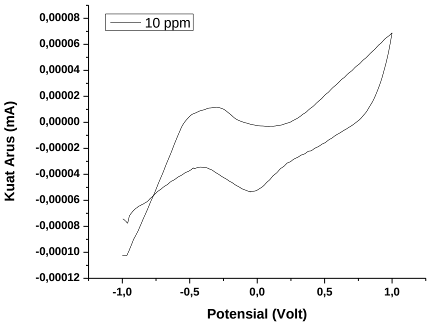
BM	Log BM	Run (cm)	Band (cm)	R_f
135000	5.1303	5,20	0.05	0.0096
100000	5.0000	5,20	0.15	0.0288
75000	4.8751	5,20	0.25	0.0481
63000	4.7993	5,20	0.45	0.0865
48000	4.6812	5,20	0.70	0.1346
35000	4.5441	5,20	1.00	0.1923
25000	4.3979	5,20	1.50	0.2885
20000	4.3010	5,20	1.70	0.3269
17000	4.2304	5,20	2.10	0.4038
11000	4.0414	5,20	2.60	0.5000

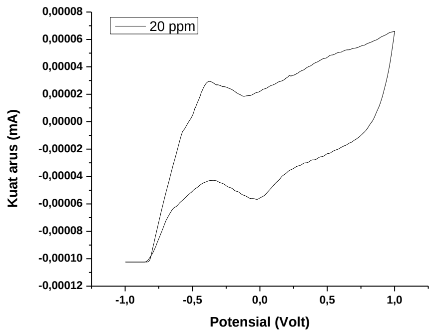


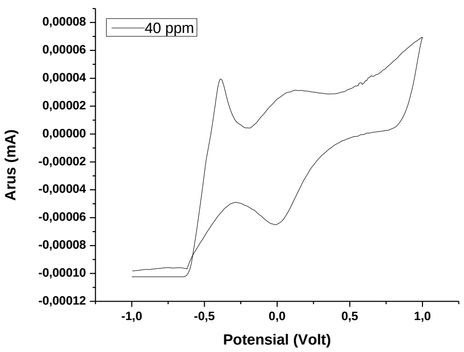
Gambar 3. Hubungan antara Rf dan Log BM Marker Protein Gel 2

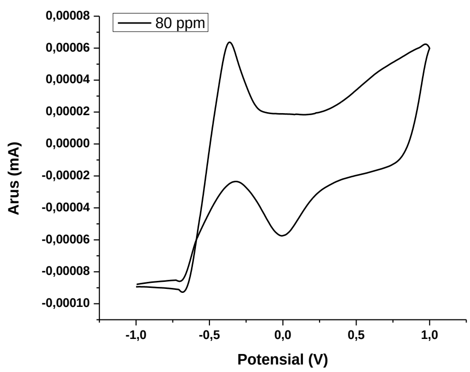
Sampel	Run (cm)	Band	Rf	A	b	Log BM	BM (inverse Log)	BM (kD)	Jml band
4 (CBB)	5.2	0.50	0.0962	-2.057	5.0154	4.8176	65706.98	65.71	1
	5.2	0.70	0.1346	-2.057	5.0154	4.7385	54764.13	54.76	2
	5.2	0.80	0.1538	-2.057	5.0154	4.6989	49996.37	50.00	3
	5.2	0.95	0.1827	-2.057	5.0154	4.6396	43611.59	43.61	4
	5.2	1.40	0.2692	-2.057	5.0154	4.4616	28946.25	28.95	5
2 (CBB)	5.2	0.15	0.0288	-2.057	5.0154	4.9561	90378.15	90.38	1
	5.2	0.25	0.0481	-2.057	5.0154	4.9165	82509.84	82.51	2
	5.2	0.35	0.0673	-2.057	5.0154	4.8769	75326.55	75.33	3
	5.2	0.50	0.0962	-2.057	5.0154	4.8176	65706.98	65.71	4
	5.2	0.55	0.1058	-2.057	5.0154	4.7978	62781.65	62.78	5
	5.2	0.60	0.1154	-2.057	5.0154	4.7781	59986.54	59.99	6
	5.2	0.70	0.1346	-2.057	5.0154	4.7385	54764.13	54.76	7
	5.2	0.80	0.1538	-2.057	5.0154	4.6989	49996.37	50.00	8
	5.2	0.90	0.1731	-2.057	5.0154	4.6594	45643.69	45.64	9
	5.2	1.05	0.2019	-2.057	5.0154	4.6000	39814.77	39.81	10
	5.2	1.20	0.2308	-2.057	5.0154	4.5407	34730.23	34.73	11
	5.2	1.40	0.2692	-2.057	5.0154	4.4616	28946.25	28.95	12
	5.2	1.50	0.2885	-2.057	5.0154	4.4220	26426.19	26.43	13
	5.2	1.60	0.3077	-2.057	5.0154	4.3825	24125.53	24.13	14
	5.2	1.80	0.3462	-2.057	5.0154	4.3034	20107.66	20.11	15
	5.2	1.90	0.3654	-2.057	5.0154	4.2638	18357.09	18.36	16
	5.2	2.20	0.4231	-2.057	5.0154	4.1451	13967.89	13.97	17
3 (Silver)	5.2	1.40	0.2692	-2.057	5.0154	4.4616	28946.25	28.95	1

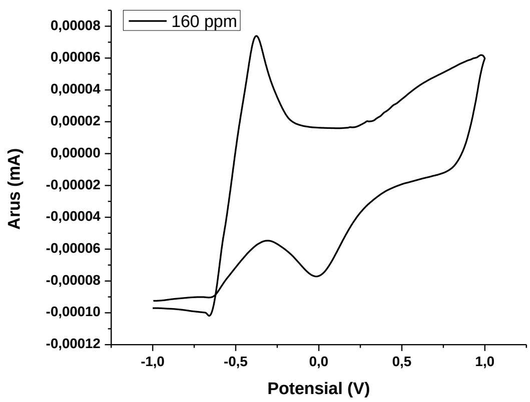
Lampiran 17. Voltammogram siklik Elektroda Kitin-selulosa asetat 2:1 pada berbagai konsentrasi asam urat (10 – 160 ppm)



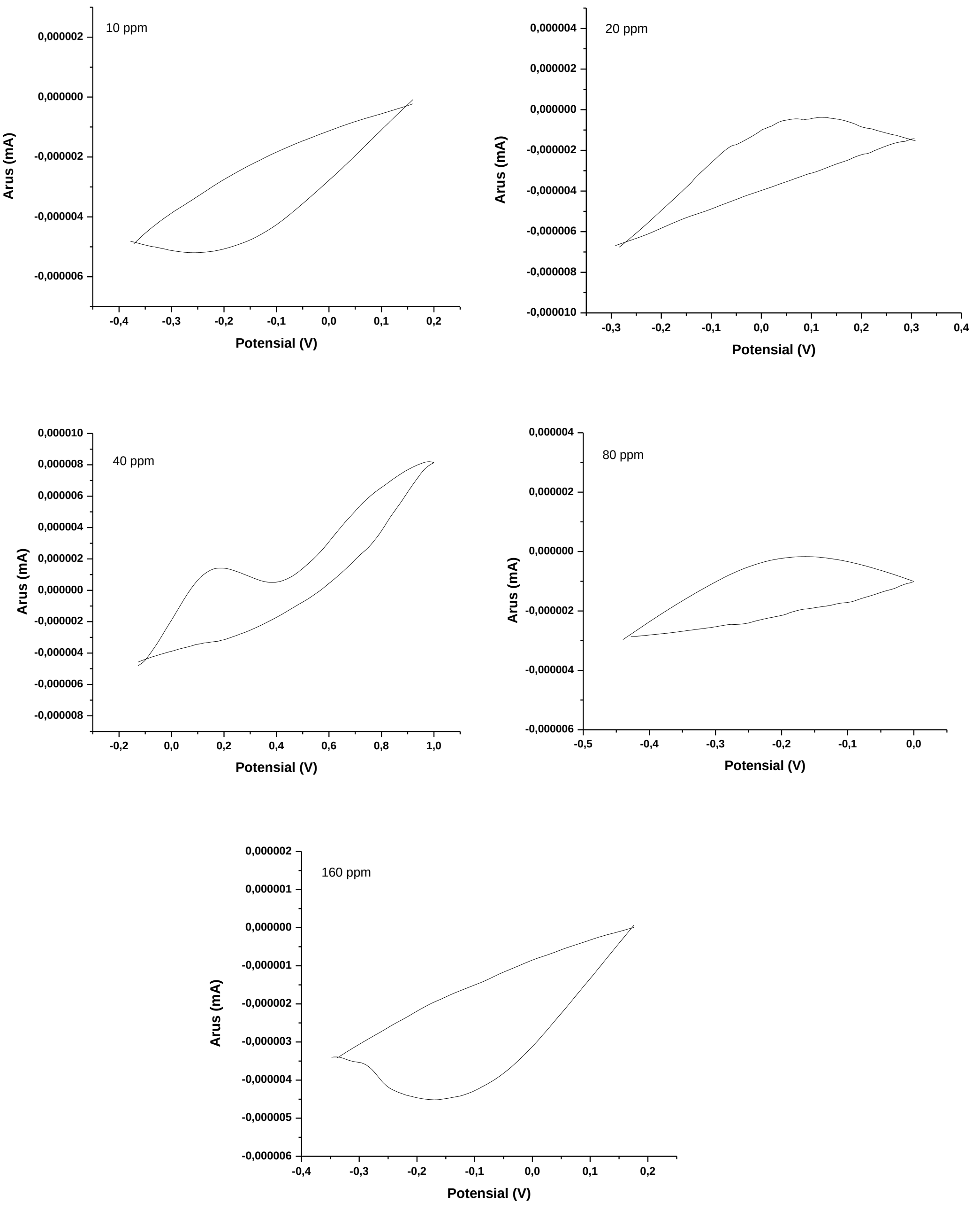




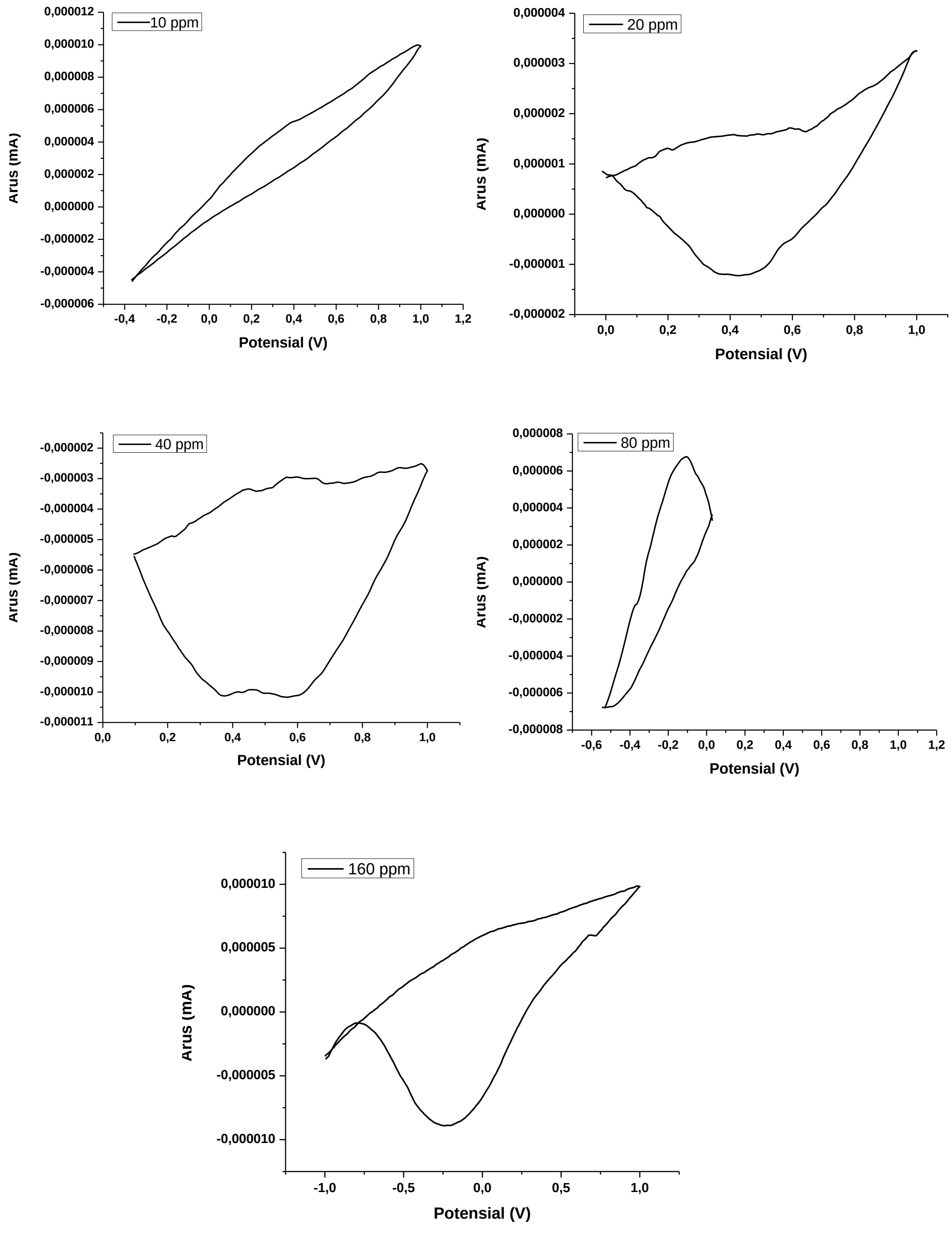




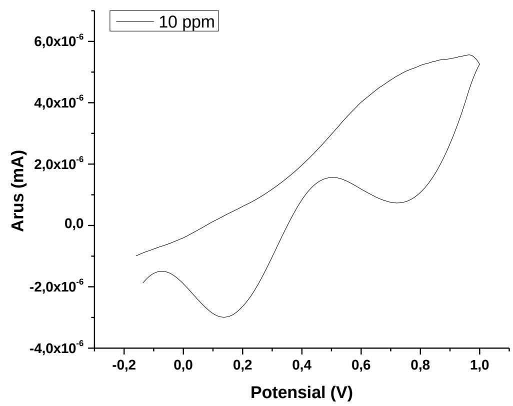
Lampiran 18. Voltammogram siklik Elektroda Kitin-selulosa asetat 1:1 pada berbagai konsentrasi asam urat (10 – 160 ppm)

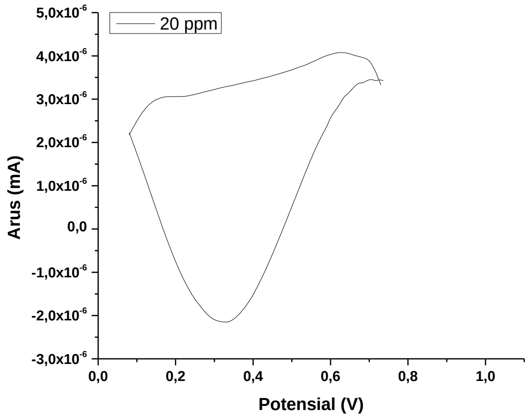


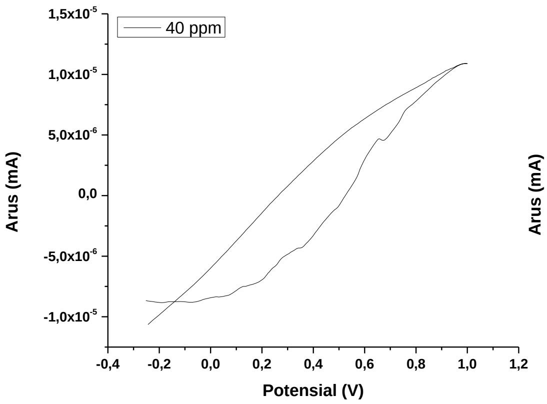
Lampiran 19. Voltammogram siklik Elektroda Kitin-selulosa asetat 1:1,5 pada berbagai konsentrasi asam urat (10 – 160 ppm)

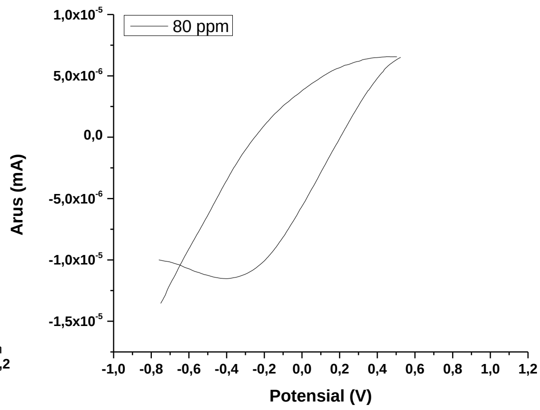


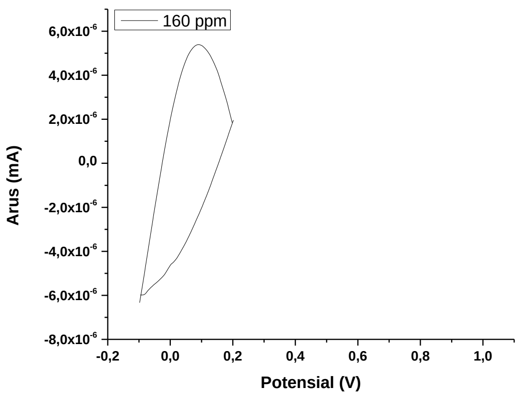
Lampiran 20. Voltammogram siklik Elektroda Kitin-selulosa asetat 1 : 2 pada berbagai konsentrasi asam urat (10 – 160 ppm)



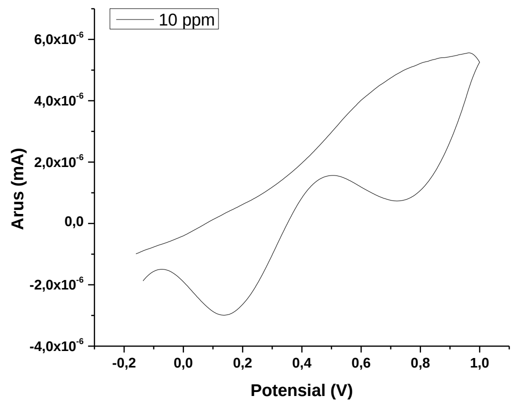


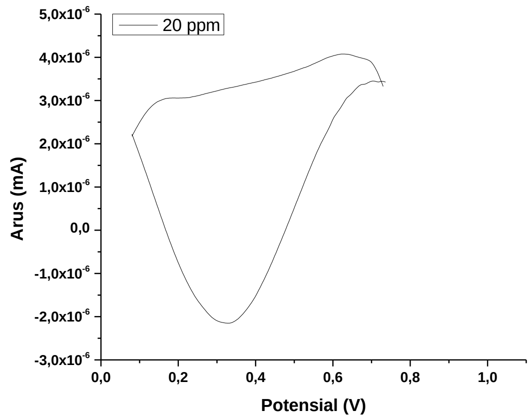


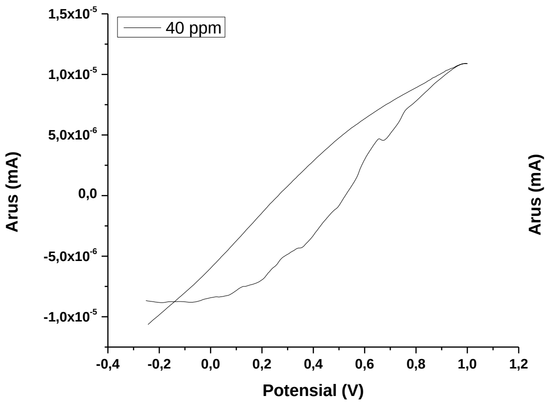


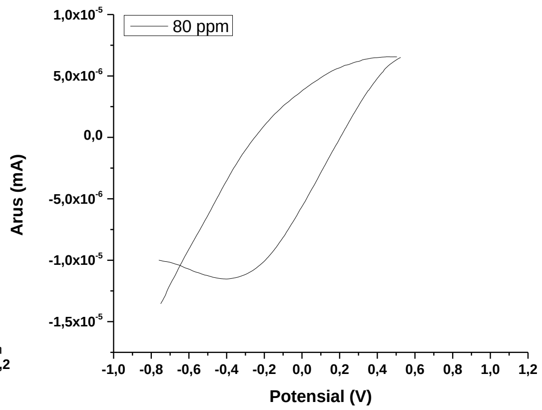


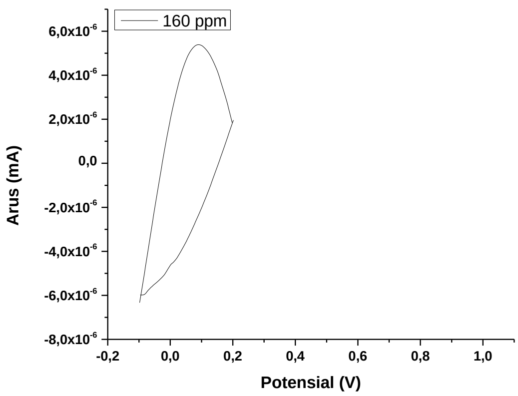
Lampiran 21. Voltammogram siklik Elektroda Kitin-selulosa asetat 1 : 2 pada berbagai konsentrasi asam urat (10 – 160 ppm)



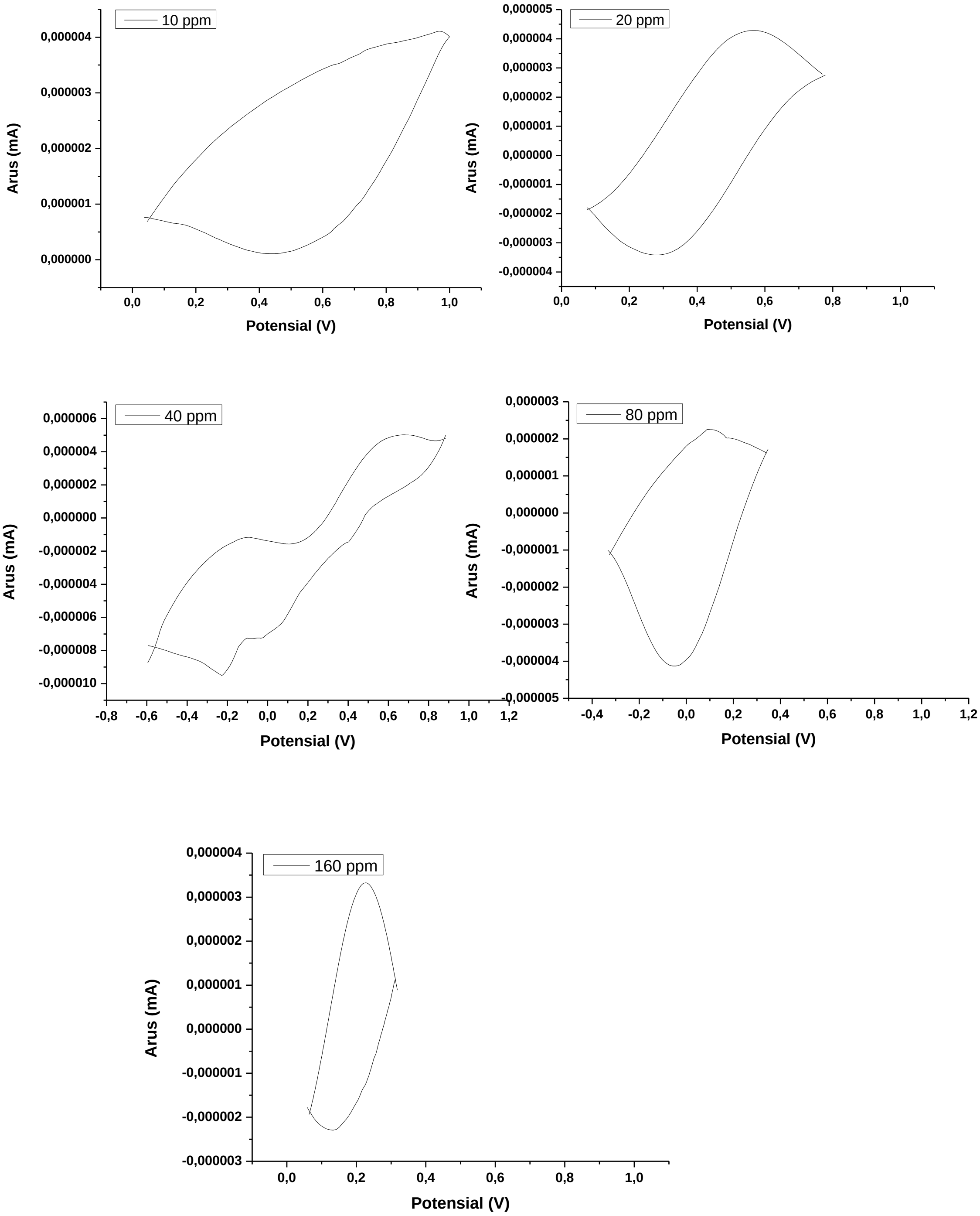






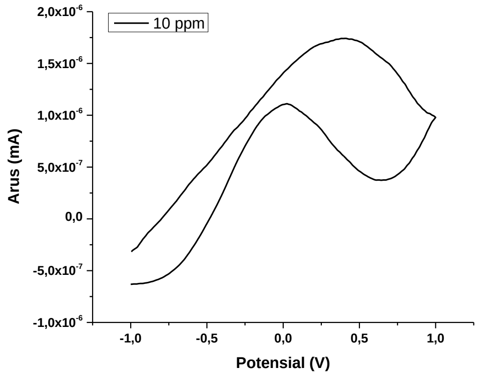


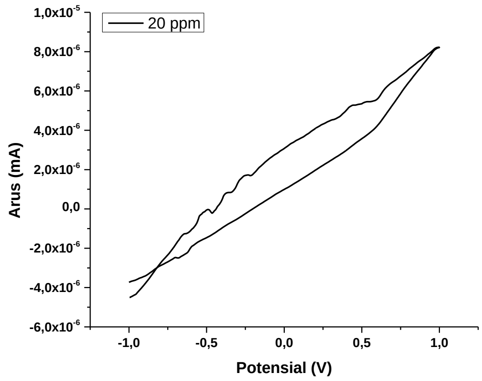
Lampiran 22. Voltammogram siklik Elektroda Kitin-selulosa asetat 1,5 : 1 pada berbagai konsentrasi asam urat (10 – 160 ppm)

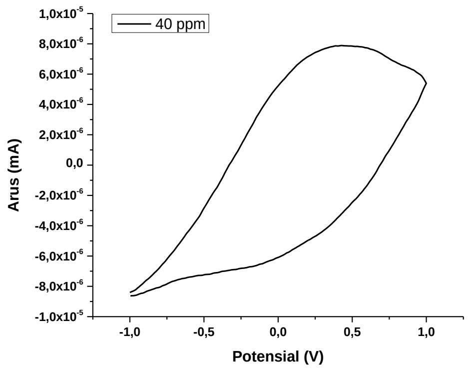


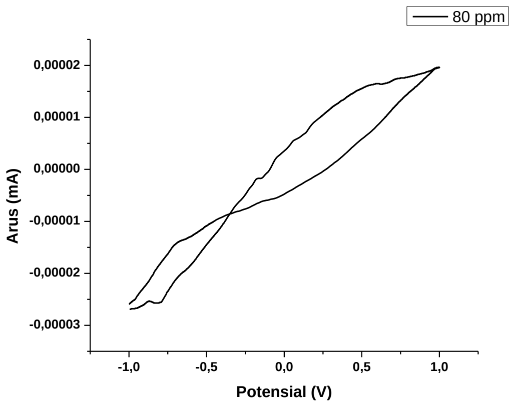
Lampiran 23. Voltammogram siklik Elektroda Urikase dalam berbagai pH pada berbagai konsentrasi asam urat (10 – 160 ppm)

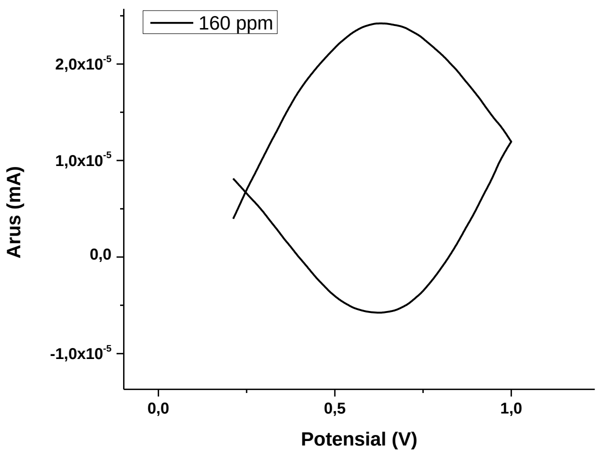
a. pH 6



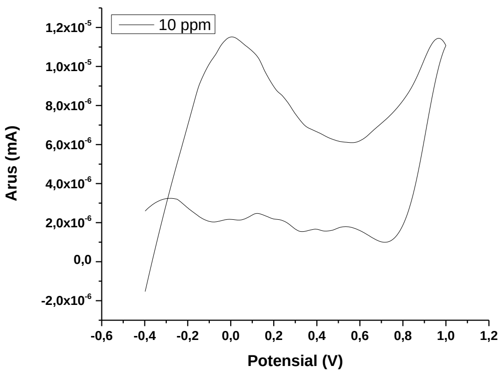


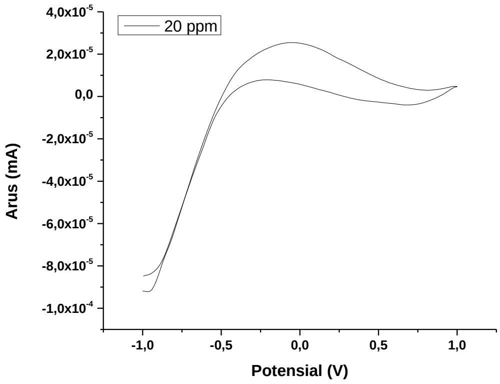


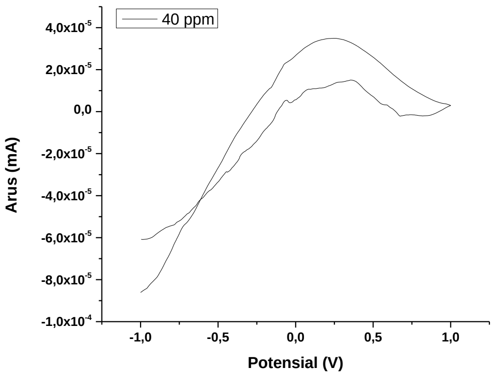


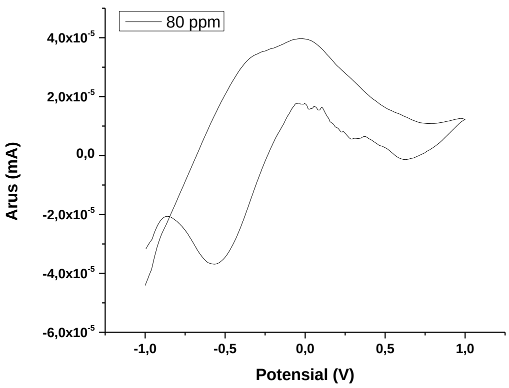


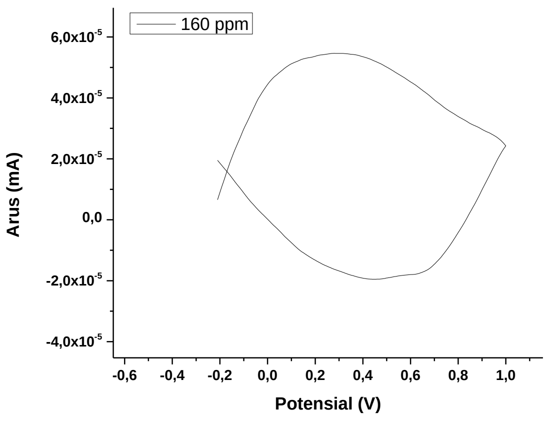
b. pH 6,5


10 ppm
Arus (mA)
Potensial (V)
$1,2x10^{-5}$
$1,0x10^{-5}$
$8,0x10^{-6}$
$6,0x10^{-6}$
$4,0x10^{-6}$
$2,0x10^{-6}$
0,0
$-2,0x10^{-6}$
-0,6
-0,4
-0,2
0,0
0,2
0,4
0,6
0,8
1,0
1,2

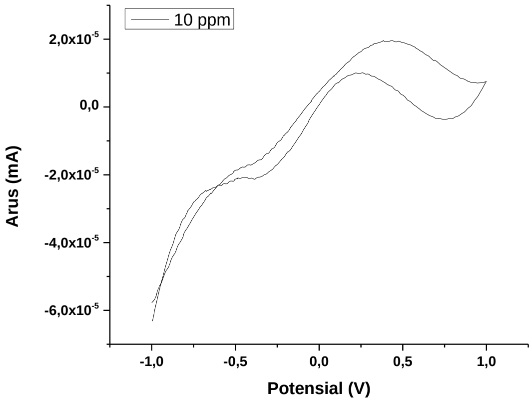

20 ppm
Arus (mA)
Potensial (V)
$4,0x10^{-5}$
$2,0x10^{-5}$
0,0
$-2,0x10^{-5}$
$-4,0x10^{-5}$
$-6,0x10^{-5}$
$-8,0x10^{-5}$
$-1,0x10^{-4}$
-1,0
-0,5
0,0
0,5
1,0

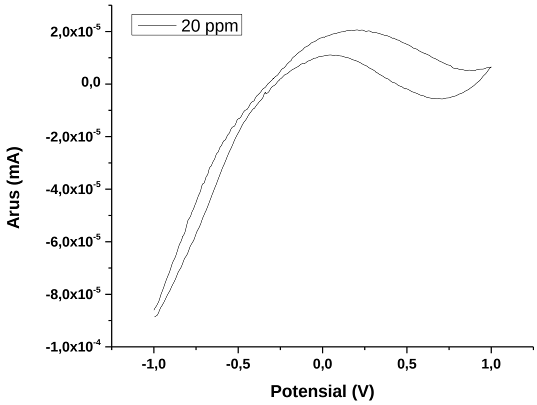

40 ppm
Arus (mA)
Potensial (V)
$4,0x10^{-5}$
$2,0x10^{-5}$
0,0
$-2,0x10^{-5}$
$-4,0x10^{-5}$
$-6,0x10^{-5}$
$-8,0x10^{-5}$
$-1,0x10^{-4}$
-1,0
-0,5
0,0
0,5
1,0

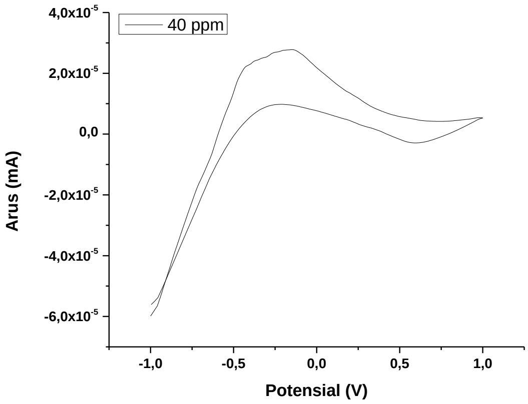

80 ppm
Arus (mA)
Potensial (V)
$4,0x10^{-5}$
$2,0x10^{-5}$
0,0
$-2,0x10^{-5}$
$-4,0x10^{-5}$
$-6,0x10^{-5}$
-1,0
-0,5
0,0
0,5
1,0

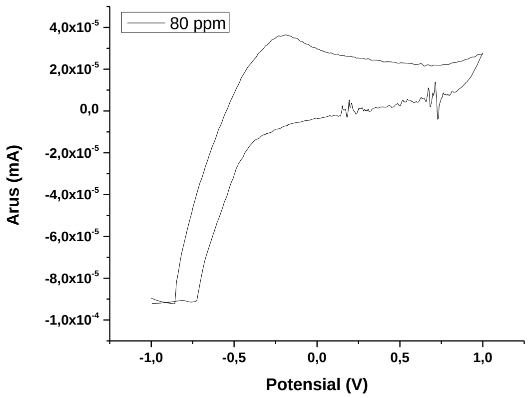

160 ppm
Arus (mA)
Potensial (V)
$6,0x10^{-5}$
$4,0x10^{-5}$
$2,0x10^{-5}$
0,0
$-2,0x10^{-5}$
$-4,0x10^{-5}$
-0,6
-0,4
-0,2
0,0
0,2
0,4
0,6
0,8
1,0

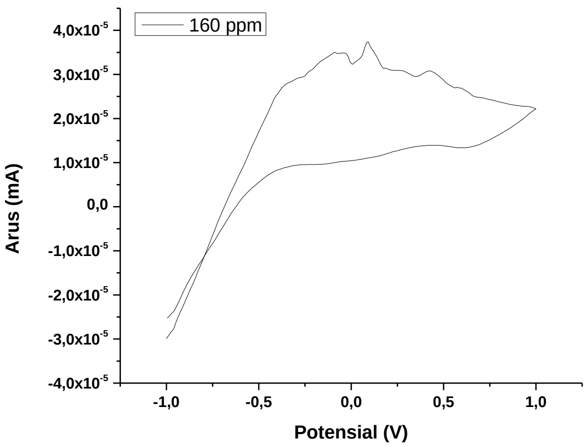
c. pH 7,0


10 ppm
Arus (mA)
Potensial (V)
2,0x10^{-5}
0,0
-2,0x10^{-5}
-4,0x10^{-5}
-6,0x10^{-5}
-1,0
-0,5
0,0
0,5
1,0

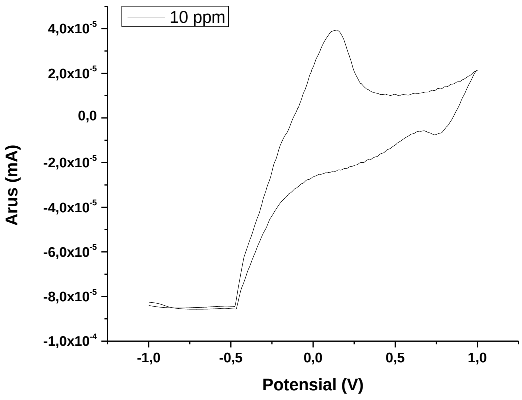

20 ppm
Arus (mA)
Potensial (V)
2,0x10^{-5}
0,0
-2,0x10^{-5}
-4,0x10^{-5}
-6,0x10^{-5}
-8,0x10^{-5}
-1,0x10^{-4}
-1,0
-0,5
0,0
0,5
1,0

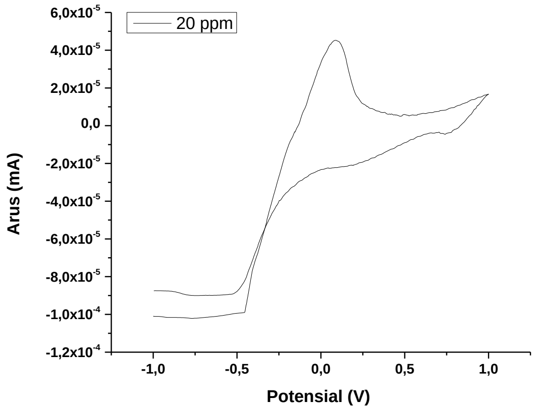

40 ppm
Arus (mA)
Potensial (V)
4,0x10^{-5}
2,0x10^{-5}
0,0
-2,0x10^{-5}
-4,0x10^{-5}
-6,0x10^{-5}
-1,0
-0,5
0,0
0,5
1,0

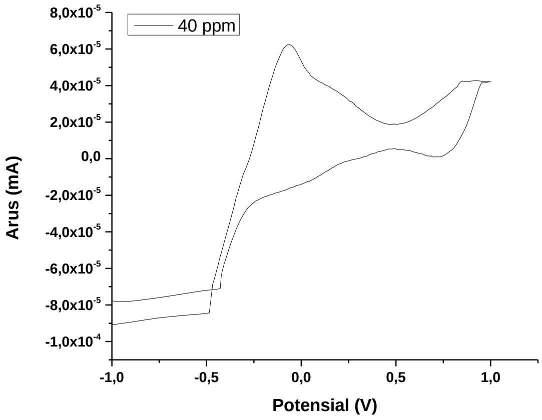

80 ppm
Arus (mA)
Potensial (V)
4,0x10^{-5}
2,0x10^{-5}
0,0
-2,0x10^{-5}
-4,0x10^{-5}
-6,0x10^{-5}
-8,0x10^{-5}
-1,0x10^{-4}
-1,0
-0,5
0,0
0,5
1,0

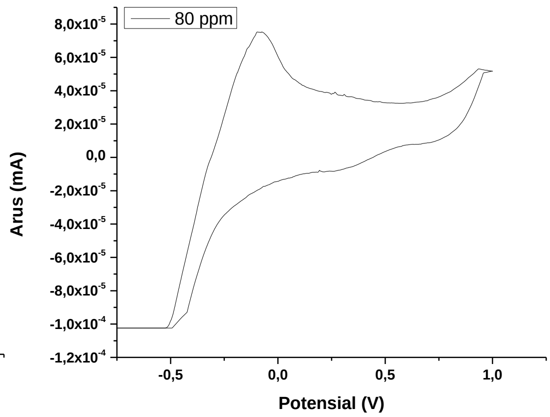

160 ppm
Arus (mA)
Potensial (V)
4,0x10^{-5}
3,0x10^{-5}
2,0x10^{-5}
1,0x10^{-5}
0,0
-1,0x10^{-5}
-2,0x10^{-5}
-3,0x10^{-5}
-4,0x10^{-5}
-1,0
-0,5
0,0
0,5
1,0

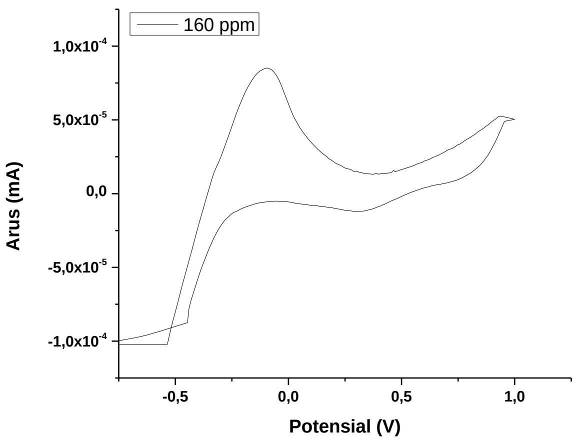
d. pH 7,5


10 ppm
Arus (mA)
Potensial (V)

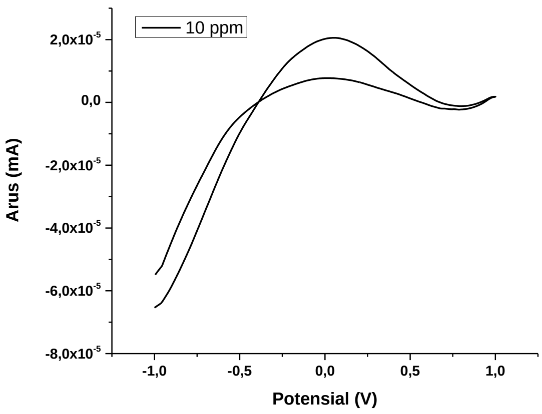

20 ppm
Arus (mA)
Potensial (V)

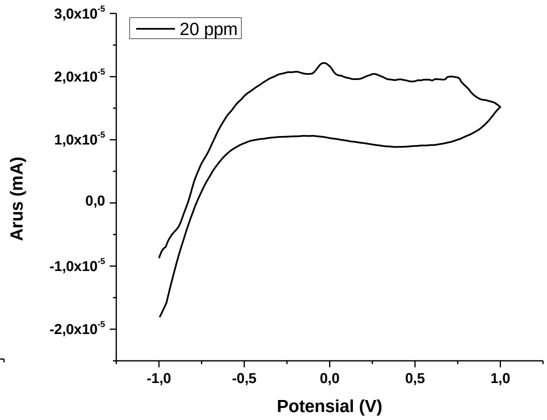

40 ppm
Arus (mA)
Potensial (V)

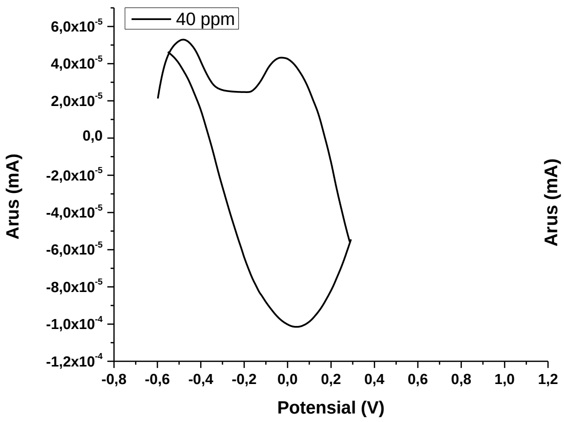

80 ppm
Arus (mA)
Potensial (V)

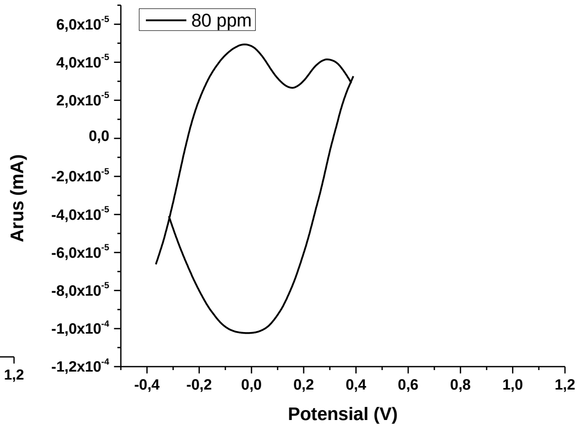

160 ppm
Arus (mA)
Potensial (V)

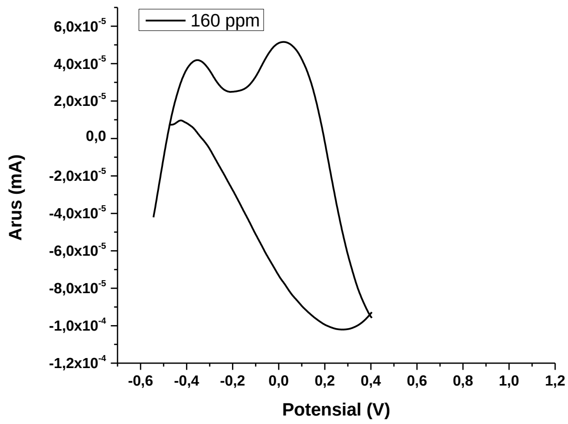
e. pH 8,0


10 ppm
Arus (mA)
Potensial (V)
2,0x10^{-5}
0,0
-2,0x10^{-5}
-4,0x10^{-5}
-6,0x10^{-5}
-8,0x10^{-5}
-1,0 -0,5 0,0 0,5 1,0


20 ppm
Arus (mA)
Potensial (V)
3,0x10^{-5}
2,0x10^{-5}
1,0x10^{-5}
0,0
-1,0x10^{-5}
-2,0x10^{-5}
-1,0 -0,5 0,0 0,5 1,0

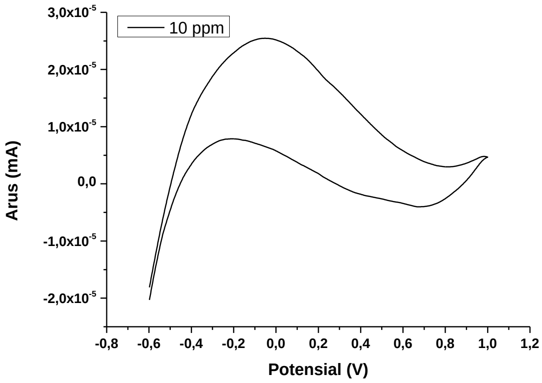

40 ppm
Arus (mA)
Potensial (V)
6,0x10^{-5}
4,0x10^{-5}
2,0x10^{-5}
0,0
-2,0x10^{-5}
-4,0x10^{-5}
-6,0x10^{-5}
-8,0x10^{-5}
-1,0x10^{-4}
-1,2x10^{-4}
-0,8 -0,6 -0,4 -0,2 0,0 0,2 0,4 0,6 0,8 1,0 1,2

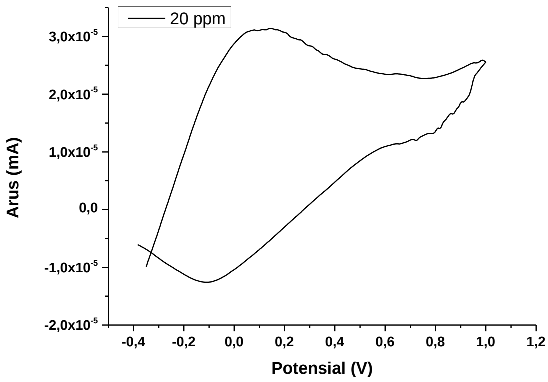

80 ppm
Arus (mA)
Potensial (V)
6,0x10^{-5}
4,0x10^{-5}
2,0x10^{-5}
0,0
-2,0x10^{-5}
-4,0x10^{-5}
-6,0x10^{-5}
-8,0x10^{-5}
-1,0x10^{-4}
-1,2x10^{-4}
-0,4 -0,2 0,0 0,2 0,4 0,6 0,8 1,0 1,2

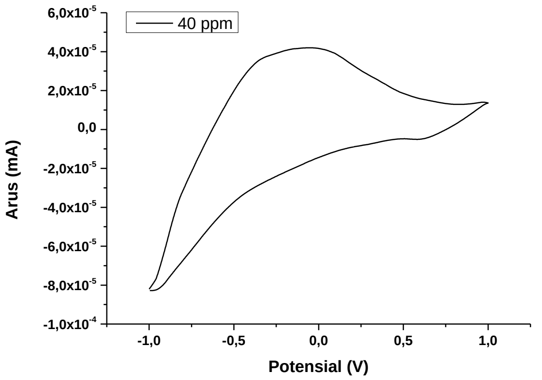

160 ppm
Arus (mA)
Potensial (V)
6,0x10^{-5}
4,0x10^{-5}
2,0x10^{-5}
0,0
-2,0x10^{-5}
-4,0x10^{-5}
-6,0x10^{-5}
-8,0x10^{-5}
-1,0x10^{-4}
-1,2x10^{-4}
-0,6 -0,4 -0,2 0,0 0,2 0,4 0,6 0,8 1,0 1,2

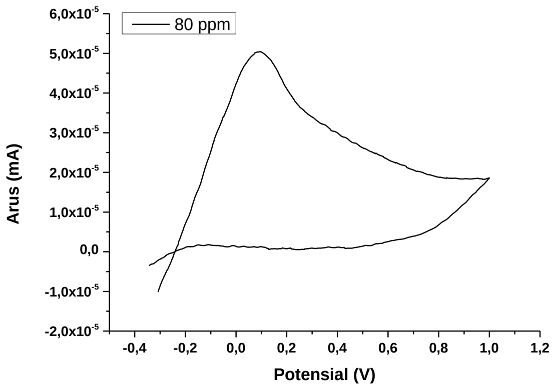
Lampiran 24. Voltammogram siklik Elektroda Urikase dalam berbagai temperatur pada berbagai konsentrasi asam urat (10 – 160 ppm)

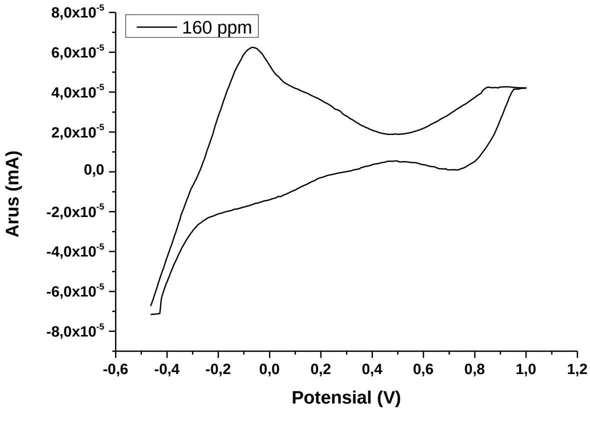
a. 29°C



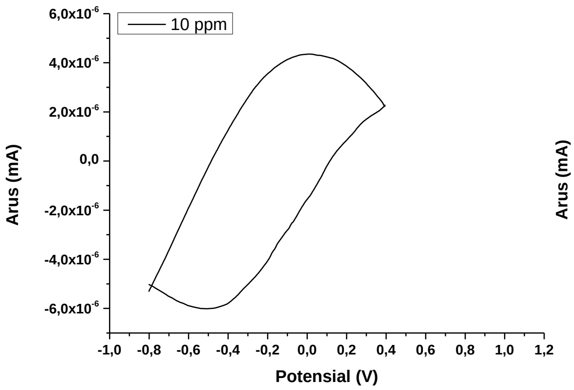


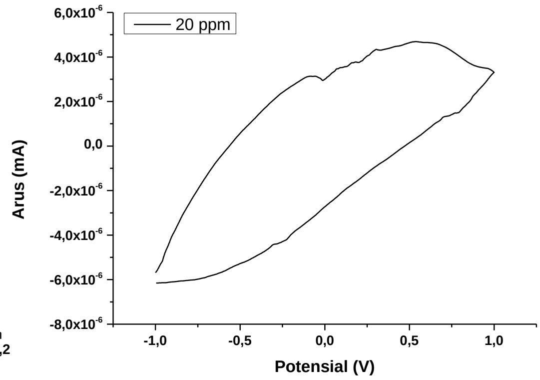


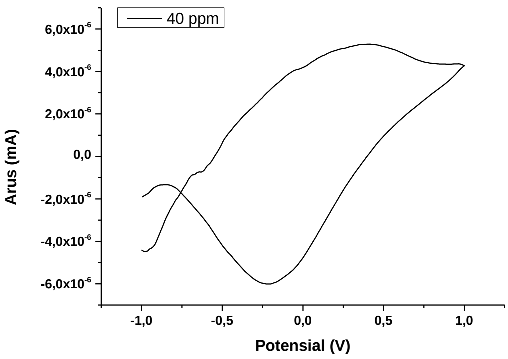


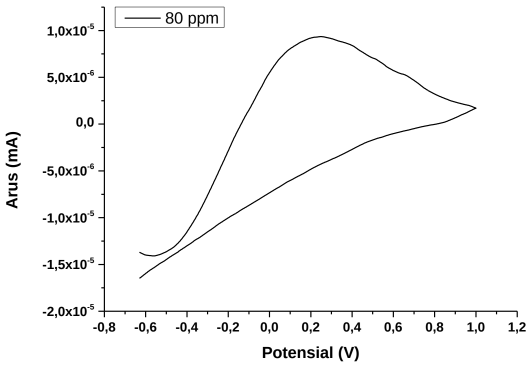


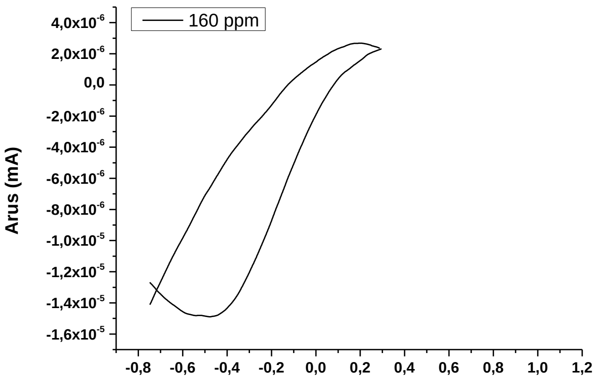
b. 33ºC


10 ppm
Arus (mA)
Potensial (V)
$6,0x10^{-6}$
$4,0x10^{-6}$
$2,0x10^{-6}$
0,0
$-2,0x10^{-6}$
$-4,0x10^{-6}$
$-6,0x10^{-6}$
-1,0 -0,8 -0,6 -0,4 -0,2 0,0 0,2 0,4 0,6 0,8 1,0 1,2

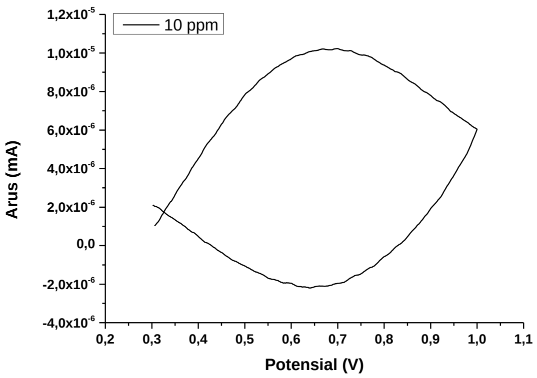

20 ppm
Arus (mA)
Potensial (V)
$6,0x10^{-6}$
$4,0x10^{-6}$
$2,0x10^{-6}$
0,0
$-2,0x10^{-6}$
$-4,0x10^{-6}$
$-6,0x10^{-6}$
$-8,0x10^{-6}$
-1,0 -0,5 0,0 0,5 1,0


40 ppm
Arus (mA)
Potensial (V)
$6,0x10^{-6}$
$4,0x10^{-6}$
$2,0x10^{-6}$
0,0
$-2,0x10^{-6}$
$-4,0x10^{-6}$
$-6,0x10^{-6}$
-1,0 -0,5 0,0 0,5 1,0

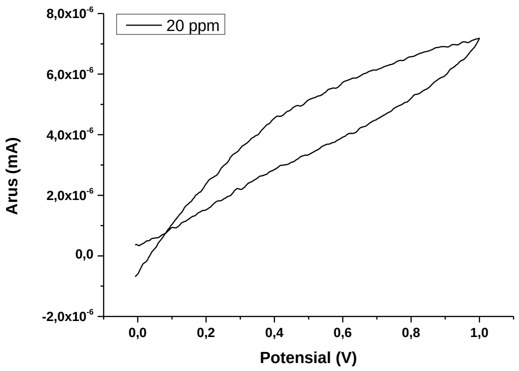

80 ppm
Arus (mA)
Potensial (V)
$1,0x10^{-5}$
$5,0x10^{-6}$
0,0
$-5,0x10^{-6}$
$-1,0x10^{-5}$
$-1,5x10^{-5}$
$-2,0x10^{-5}$
-0,8 -0,6 -0,4 -0,2 0,0 0,2 0,4 0,6 0,8 1,0 1,2


160 ppm
Arus (mA)
Potensial (V)
$4,0x10^{-6}$
$2,0x10^{-6}$
0,0
$-2,0x10^{-6}$
$-4,0x10^{-6}$
$-6,0x10^{-6}$
$-8,0x10^{-6}$
$-1,0x10^{-5}$
$-1,2x10^{-5}$
$-1,4x10^{-5}$
$-1,6x10^{-5}$
-0,8 -0,6 -0,4 -0,2 0,0 0,2 0,4 0,6 0,8 1,0 1,2

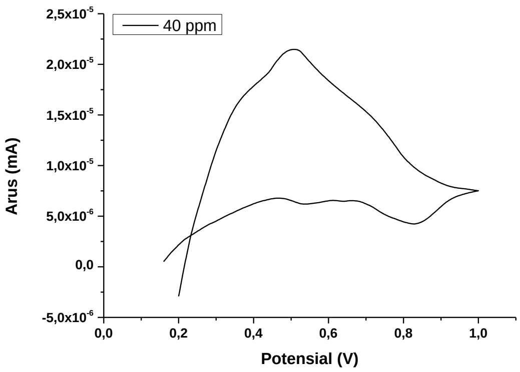
c. 37ºC



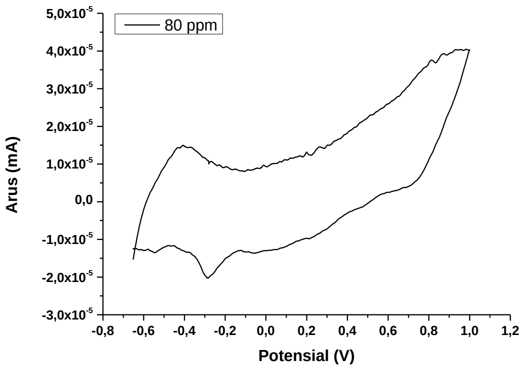
10 ppm
Arus (mA)
Potensial (V)
1,2x10^-5
1,0x10^-5
8,0x10^-6
6,0x10^-6
4,0x10^-6
2,0x10^-6
0,0
-2,0x10^-6
-4,0x10^-6
0,2
0,3
0,4
0,5
0,6
0,7
0,8
0,9
1,0
1,1



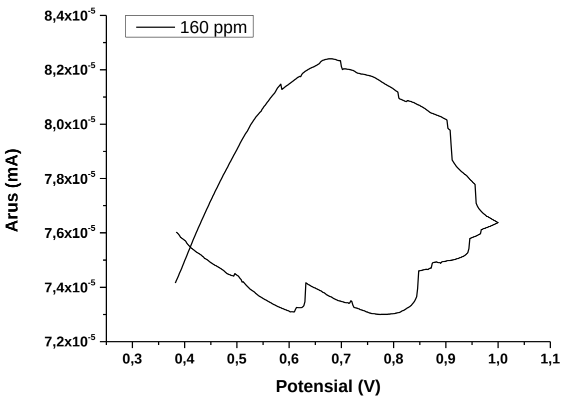
20 ppm
Arus (mA)
Potensial (V)
8,0x10^-6
6,0x10^-6
4,0x10^-6
2,0x10^-6
0,0
-2,0x10^-6
0,0
0,2
0,4
0,6
0,8
1,0



40 ppm
Arus (mA)
Potensial (V)
2,5x10^-5
2,0x10^-5
1,5x10^-5
1,0x10^-5
5,0x10^-6
0,0
-5,0x10^-6
0,0
0,2
0,4
0,6
0,8
1,0

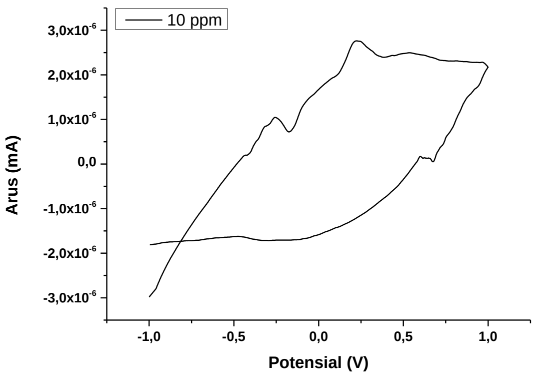


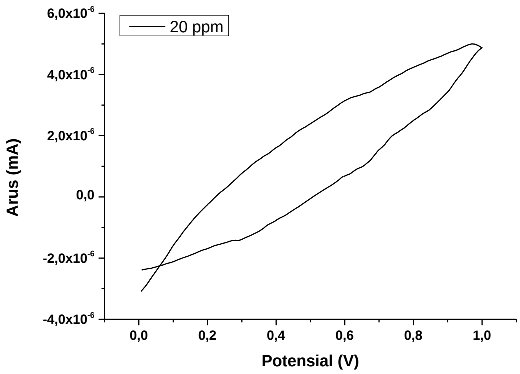
80 ppm
Arus (mA)
Potensial (V)
5,0x10^-5
4,0x10^-5
3,0x10^-5
2,0x10^-5
1,0x10^-5
0,0
-1,0x10^-5
-2,0x10^-5
-3,0x10^-5
-0,8
-0,6
-0,4
-0,2
0,0
0,2
0,4
0,6
0,8
1,0
1,2

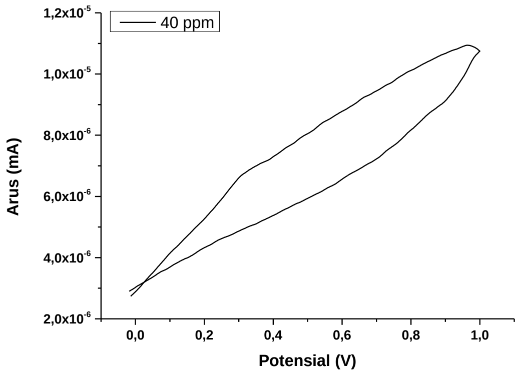


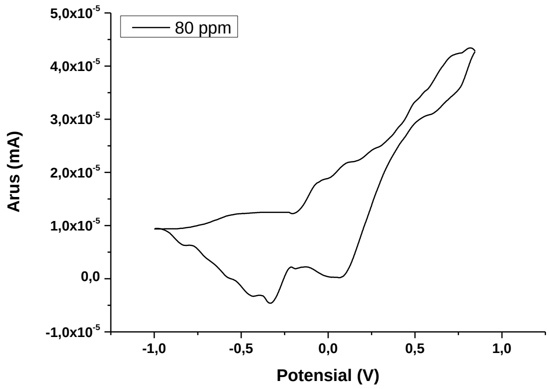
160 ppm
Arus (mA)
Potensial (V)
8,4x10^-5
8,2x10^-5
8,0x10^-5
7,8x10^-5
7,6x10^-5
7,4x10^-5
7,2x10^-5
0,3
0,4
0,5
0,6
0,7
0,8
0,9
1,0
1,1

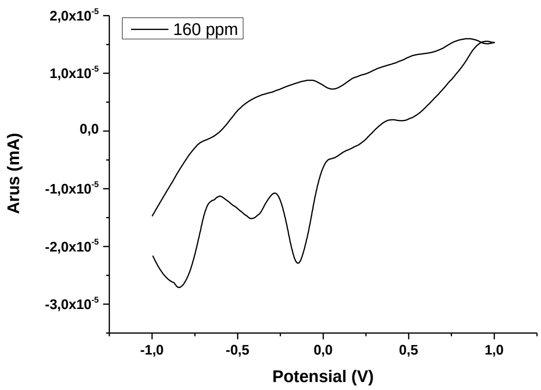
d. 41ºC


10 ppm
Arus (mA)
3,0x10-6
2,0x10-6
1,0x10-6
0,0
-1,0x10-6
-2,0x10-6
-3,0x10-6
-1,0
-0,5
0,0
0,5
1,0
Potensial (V)

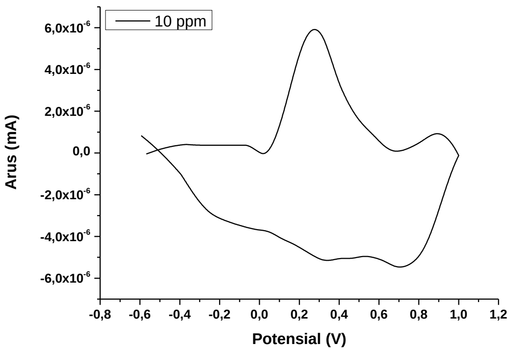

20 ppm
Arus (mA)
6,0x10-6
4,0x10-6
2,0x10-6
0,0
-2,0x10-6
-4,0x10-6
0,0
0,2
0,4
0,6
0,8
1,0
Potensial (V)

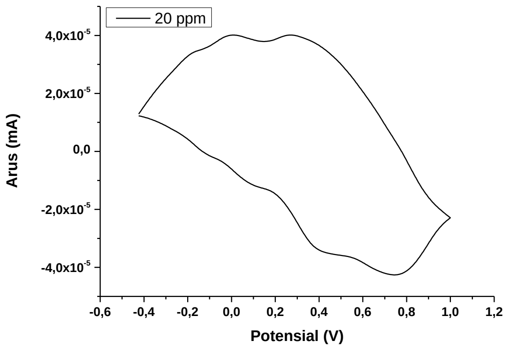

40 ppm
Arus (mA)
1,2x10-5
1,0x10-5
8,0x10-6
6,0x10-6
4,0x10-6
2,0x10-6
0,0
0,2
0,4
0,6
0,8
1,0
Potensial (V)

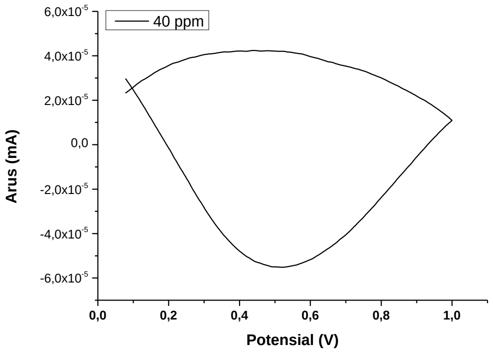

80 ppm
Arus (mA)
5,0x10-5
4,0x10-5
3,0x10-5
2,0x10-5
1,0x10-5
0,0
-1,0x10-5
-1,0
-0,5
0,0
0,5
1,0
Potensial (V)

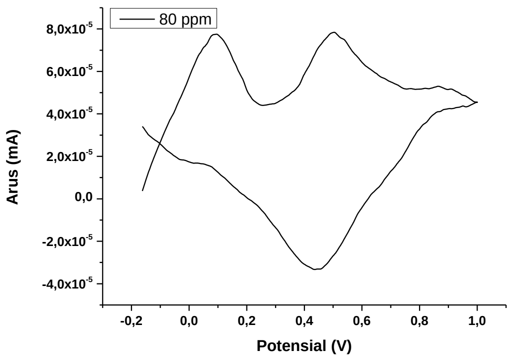

160 ppm
Arus (mA)
2,0x10-5
1,0x10-5
0,0
-1,0x10-5
-2,0x10-5
-3,0x10-5
-1,0
-0,5
0,0
0,5
1,0
Potensial (V)

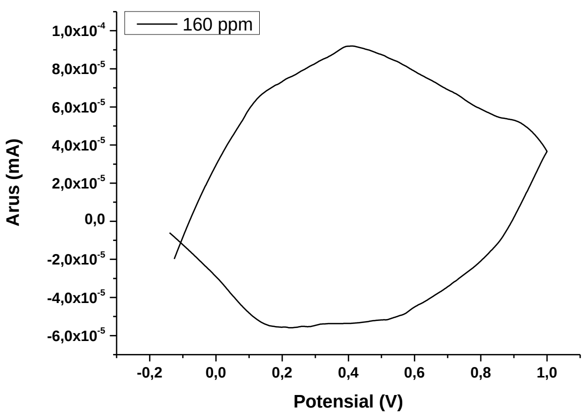
e. 45 ºC


10 ppm
Arus (mA)
Potensial (V)

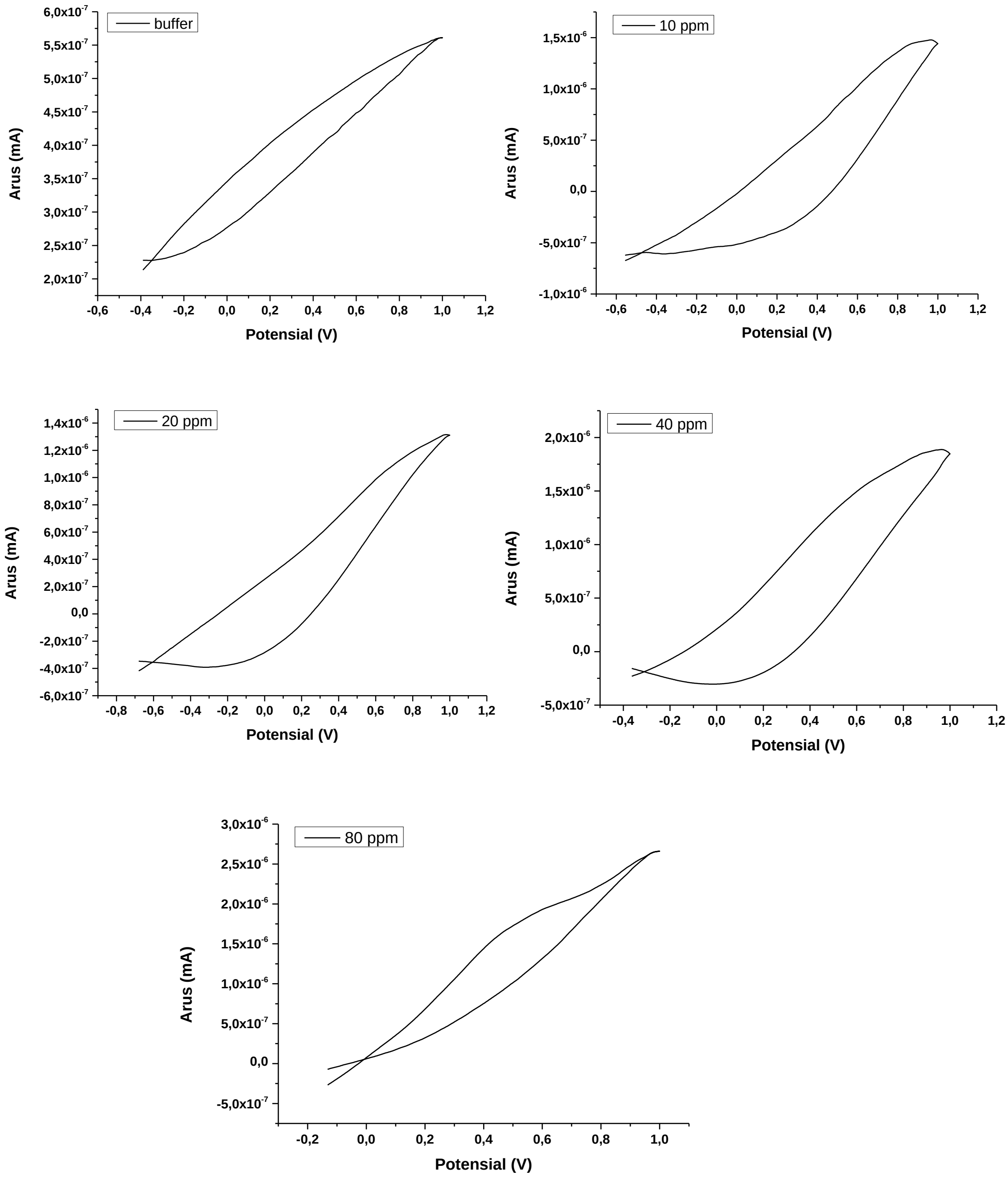

20 ppm
Arus (mA)
Potensial (V)


40 ppm
Arus (mA)
Potensial (V)


80 ppm
Arus (mA)
Potensial (V)

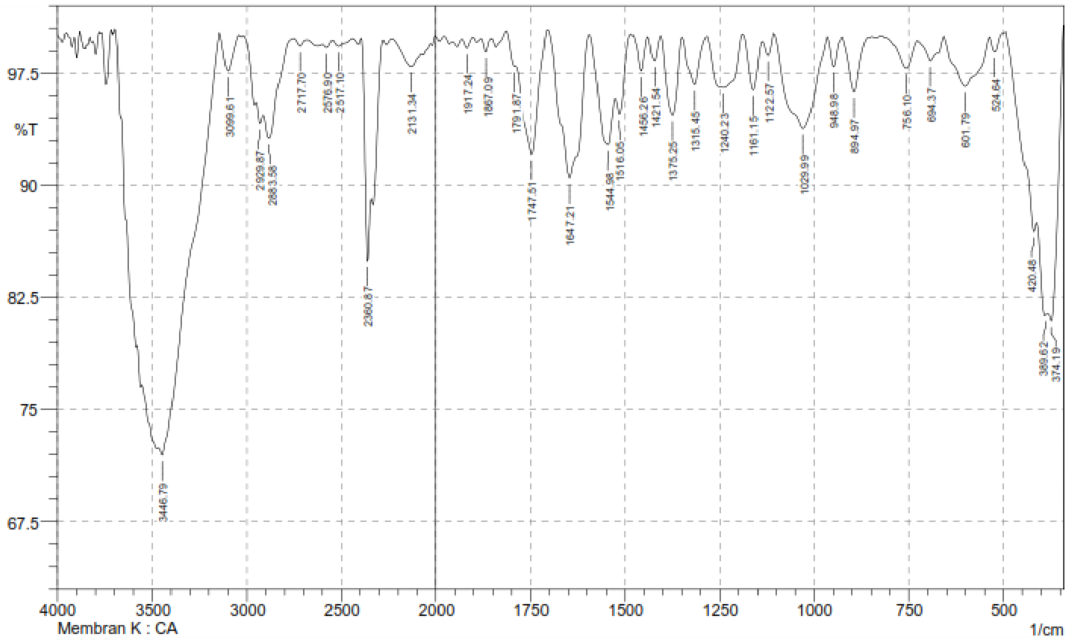

160 ppm
Arus (mA)
Potensial (V)

Lampiran 25. Voltammogram siklik Elektroda Urikase dalam Buffer fosfat dan berbagai konsentrasi xantin (10 – 80 ppm)



Lampiran 26. a. Spektra FTIR membran K-CA 2:1

SHIMADZU



No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	374.19	80.923	4.132	381.91	343.33	2.308	0.642
2	389.62	81.329	0.52	412.77	387.69	1.951	0.087
3	420.48	86.921	1.423	493.78	414.7	2.468	0.162
4	524.64	98.94	1.059	536.21	493.78	0.067	0.081
5	601.79	96.622	3.234	655.8	538.14	1.12	1.047
6	694.37	98.325	1.478	729.09	657.73	0.302	0.241
7	756.1	97.83	1.9	813.96	729.09	0.401	0.317
8	894.97	96.239	3.656	925.83	856.39	0.518	0.486
9	948.98	97.928	1.988	966.34	925.83	0.177	0.162
10	1029.99	93.805	6.217	1109.07	966.34	2.326	2.347
11	1122.57	98.698	1.201	1138	1109.07	0.1	0.085
12	1161.15	96.373	3.447	1186.22	1138	0.409	0.373
13	1240.23	96.54	3.437	1282.66	1192.01	1.005	0.997
14	1315.45	96.738	3.181	1350.17	1284.59	0.482	0.459
15	1375.25	94.686	5.247	1406.11	1350.17	0.757	0.742
16	1421.54	98.332	1.627	1440.83	1406.11	0.138	0.132
17	1456.26	97.623	2.354	1477.47	1440.83	0.182	0.18
18	1516.05	94.756	2.055	1525.69	1485.19	0.527	0.158
19	1544.98	92.73	4.161	1593.2	1527.62	1.381	0.753
20	1647.21	90.474	9.742	1705.07	1595.13	2.527	2.633
21	1747.51	92.09	7.083	1788.01	1707	1.614	1.33
22	1791.87	97.942	0.358	1815.02	1788.01	0.124	0.022
23	1867.09	98.928	0.888	1880.6	1853.59	0.068	0.047
24	1917.24	99.193	0.629	1930.74	1901.81	0.06	0.038
25	2131.34	97.946	1.204	2233.57	2075.41	0.904	0.417
26	2360.87	84.967	7.794	2393.66	2343.51	2.151	0.833
27	2517.1	99.314	0.415	2546.04	2441.88	0.215	0.104
28	2576.9	99.226	0.317	2600.04	2546.04	0.139	0.037
29	2717.7	99.319	0.454	2750.49	2679.13	0.133	0.061
30	2883.58	93.151	2.443	2912.51	2752.42	2.429	0.589
31	2929.87	94.135	0.919	2951.09	2912.51	0.919	0.077
32	3099.61	97.629	2.476	3143.97	3043.67	0.533	0.575
33	3446.79	71.98	2.135	3466.08	3143.97	24.187	1.919

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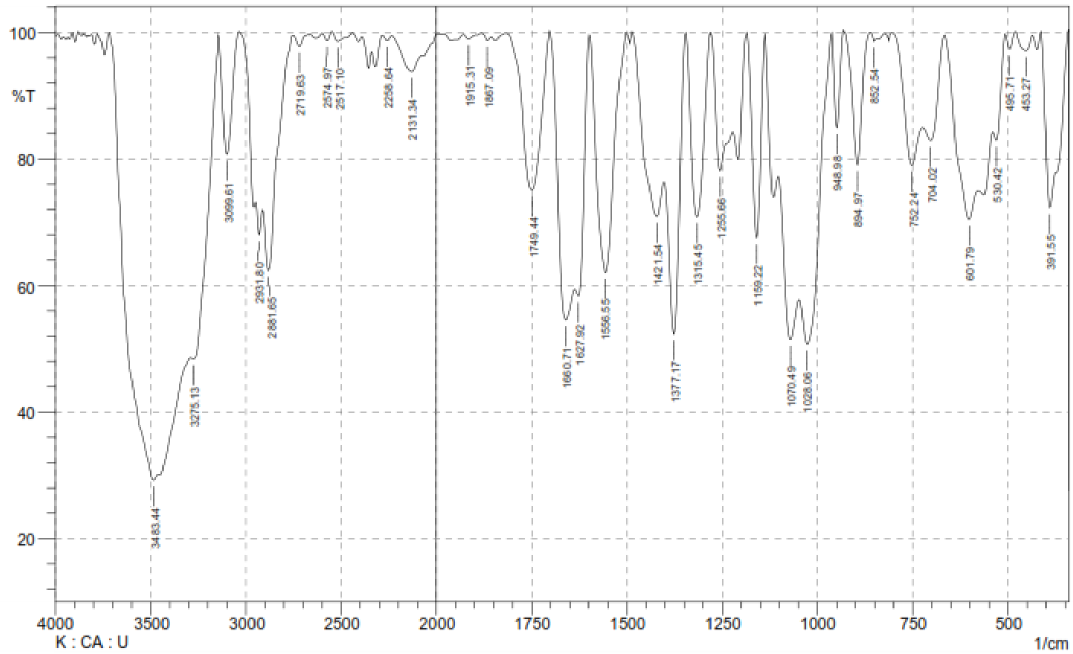
No. of Scans;

Lampiran 26 b. Spektra FTIR membran K-CA 2:1 + Uox

SHIMADZU



No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	391.55	72.286	14.926	412.77	376.12	3.538	1.448
2	453.27	97.126	2.667	480.28	435.91	0.372	0.345
3	495.71	97.343	2.562	509.21	480.28	0.166	0.156
4	530.42	82.934	6.152	540.07	509.21	1.619	0.521
5	601.79	70.451	11.114	665.44	578.64	8.681	3.075
6	704.02	82.904	7.067	723.31	667.37	3.069	1.103
7	752.24	79	11.183	802.39	725.23	4.623	1.852
8	852.54	98.576	0.845	862.18	844.82	0.06	0.02
9	894.97	79.054	21.119	931.62	864.11	2.691	2.745
10	948.98	84.964	15.056	962.48	933.55	1.108	1.112
11	1028.06	50.73	16.724	1047.35	964.41	14.65	4.91
12	1070.49	51.453	13.909	1103.28	1049.28	12.449	2.853
13	1159.22	67.52	31.549	1184.29	1139.93	3.952	3.78
14	1255.66	78.128	15.044	1280.73	1222.87	4.313	2.09
15	1315.45	70.885	28.929	1346.31	1282.66	5.36	5.306
16	1377.17	52.353	34.781	1402.25	1348.24	8.895	5.792
17	1421.54	70.93	10.442	1485.19	1404.18	7.955	3.077
18	1556.55	62.053	37.554	1597.06	1504.48	9.745	9.605
19	1627.92	58.314	11.139	1637.56	1598.99	5.634	1.506
20	1660.71	54.551	18.731	1701.22	1639.49	10.851	3.683
21	1749.44	75.149	24.965	1818.87	1703.14	6.454	6.494
22	1867.09	98.715	0.869	1882.52	1855.52	0.086	0.043
23	1915.31	98.976	0.677	1928.82	1896.03	0.095	0.045
24	2131.34	93.808	3.657	2233.57	2077.33	2.748	1.313
25	2258.64	98.693	0.826	2285.65	2235.5	0.194	0.089
26	2517.1	98.608	1.098	2549.89	2478.53	0.278	0.174
27	2574.97	98.719	1.291	2601.97	2549.89	0.149	0.15
28	2719.63	97.785	1.806	2752.42	2673.34	0.395	0.257
29	2881.65	62.428	14.804	2912.51	2752.42	15.378	4.307
30	2931.8	67.979	4.555	2949.16	2914.44	5.338	0.488
31	3099.61	80.781	18.696	3142.04	3039.81	4.897	4.707
32	3275.13	48.425	4.883	3288.63	3143.97	26.459	3.967
33	3483.44	29.217	7.158	3716.83	3460.3	83.492	16.566

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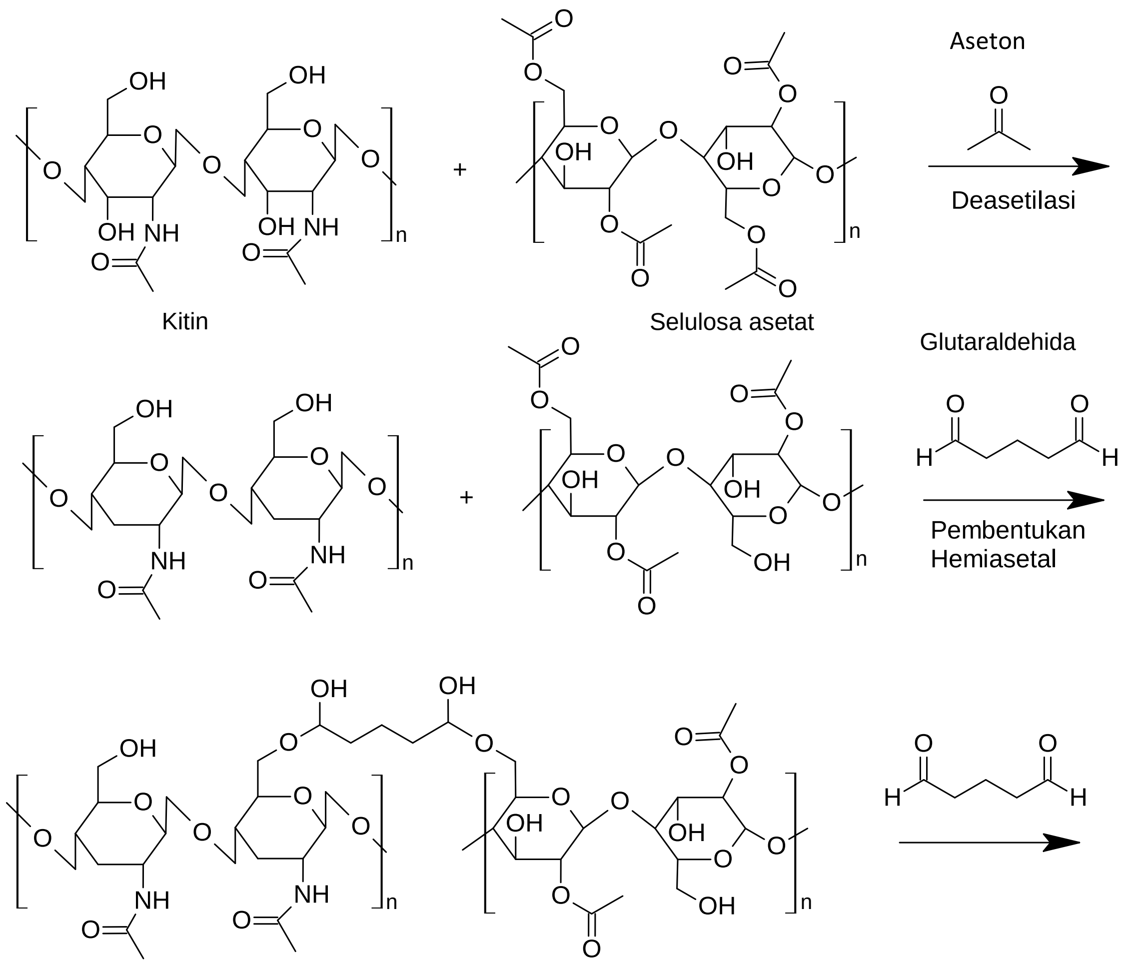
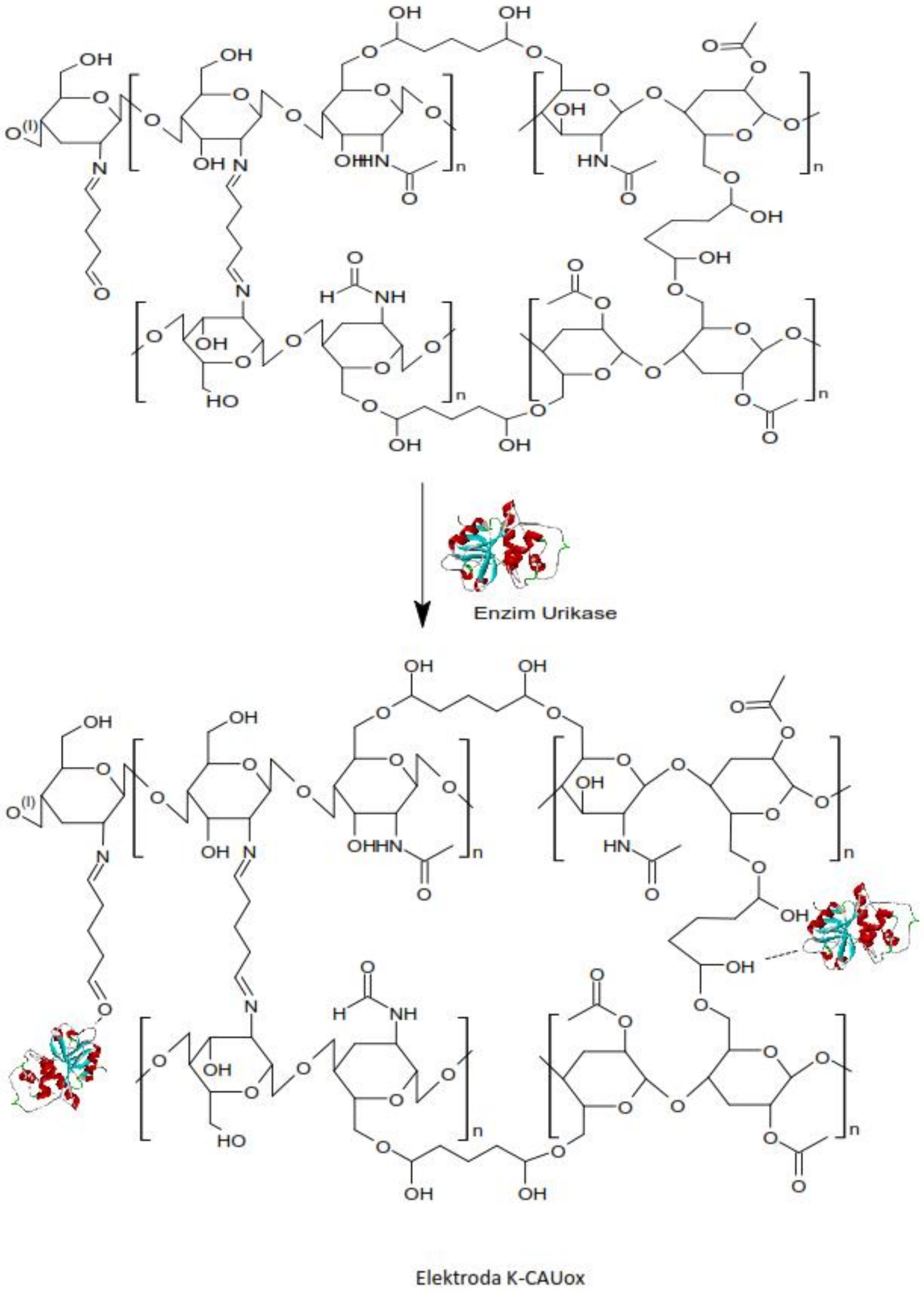
No. of Scans;

Lampiran 27. Reaksi yang terjadi pada proses pembentukan membrane K-CA dan pembuatan Elektroda K-CAUox (amobilisasi enzim urikase)



Membran K-CA



Elektroda K-CAUox

Lampiran 28. Hasil Uji Statistik (Uji t dua sampel berpasangan) dua cara pengukuran asam urat

Hasil Pengukuran Asam urat serum darah dengan Biosensor dan Thermo scientific indiko

No	Kode Sampel	[As. Urat] A (mg/dL)	[As. Urat] B (mg/dL)	[As. Urat] C (mg/dL)
1	S01	6,89	6,2	6,8
2	S02	8,11	7,15	7,9
3	S03	5,49	5,0	5,41
4	S04	12,02	15,91	12,04
5	S05	8,806	9,1	8,89

Keterangan : S01 = sampel serum darah 01
S02 = sampel serum darah 02
S02 = sampel serum darah 03
S02 = sampel serum darah 04
S02 = sampel serum darah 05

Hasil Uji Statistik Pengukuran Asam Urat menggunakan Biosensor urikase (hasil Penelitian dan Alat Thermo scientific indiko (Labkes)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	biosensor urikase	8,2632	5	2,44990	1,09563
	Themo scientific indiko (Labkes)	8,2080	5	2,50277	1,11927

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	95% Confidence Interval of the Difference Upper			
Pair 1	biosensor urikase - Themo scientific indiko (Labkes)	,05520	,11272	,05041	-,08476	,19516	1,095	4	,335

Untuk melakukan uji paired sample T-test digunakan uji t, maka hipotesisnya:

H0 = tidak ada perbedaan yang signifikan rata-rata hasil pengukuran asam urat menggunakan Biosensor asam urat dengan elektroda K-CAUox *Bacillus badius* (hasil penelitian) dan Hasil pengukuran menggunakan Thermo scientific indiko (Labkes).

H1 = Ada perbedaan yang signifikan rata- hasil pengukuran asam urat menggunakan Biosensor urikase (hasil penelitian) dan Hasil pengukuran menggunakan Thermo scientific indiko (Labkes).

Kriteria uji : tolak H0 jika nilai p-value signifikansi < 0,05.

Berdasarkan hasil analisis uji T dua sampel berpasangan menggunakan aplikasi SPSS diperoleh nilai p-value signfikansi 0,335; p-value signifikansi > 0,05 dan t hitung 1,095 < t Tabel, df(4) = 2,132, maka tidak ada perbedaan hasil yang signifikan antara kedua metode pengukuran (Hipotesis nol diterima).

Hasil Uji Statistik Pengukuran Asam Urat menggunakan Biosensor urikase dari *Candida sp* dan Alat Thermo scientific indiko (Labkes)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	biosensor urikase Candida sp	8,6720	5	4,31517	1,92980
	Alat Thermo Scientic indiko (Labkes)	8,2080	5	2,50277	1,11927

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	biosensor urikase Candida sp - Alat Thermo Scientic indiko (Labkes)	,46400	1,93876	,86704	-1,94329	2,87129	,535	4	,621

Hipotesisnya :

H0 = tidak ada perbedaan yang signifikan rata-rata hasil pengukuran asam urat menggunakan Biosensor asam urat dengan elektroda K-CAUox dari *Candida sp* dan Hasil pengukuran menggunakan Thermo scientific indiko (Labkes).

H1 = Ada perbedaan yang signifikan rata-rata hasil pengukuran asam urat menggunakan Biosensor asam urat dengan elektroda K-CAUox dari *Candida sp* dan Hasil pengukuran menggunakan Thermo scientific indiko (Labkes).

Kriteria uji : tolak H0 jika nilai p-value signifikansi < 0,05.

Berdasarkan hasil analisis uji T dua sampel berpasangan menggunakan aplikasi SPSS diperoleh nilai p-value signfikansi 0,621; p-value signifikansi > 0,05 dan t hitung 0,535 < t Tabel, df(4) = 2,132, maka tidak ada perbedaan hasil yang signifikan antara kedua metode pengukuran (Hipotesis nol diterima).