

# **LAMPIRAN 1**

## LAMPIRAN 1

### A. Optimasi kondisi *electrospinning*

Tabel Optimasi kondisi *electrospinning*

NO	Larutan	Konsentrasi/ perbandingan (w/w)	Jarak (cm)	Diameter spineret (mm)	Tegangan (kv)	Waktu	Keterangan			total
							Spot	Fiber terkumpul	sirkel	
1	PVA	10%	10	0,6	10	10 menit	3	2	1	6
2	PVA	10%	10	0,6	15	10 menit	3	2	0	5
3	PVA	10%	10	0,6	20	10 menit	3	1	0	4
4	PVA	10%	10	0,6	25	10 menit	0	0	1	1
5	PVA	10%	12,5	0,6	10	10 menit	3	2	3	8
6	PVA	10%	12,5	0,6	15	10 menit	2	2	2	6
7	PVA	10%	12,5	0,6	20	10 menit	3	2	1	6
8	PVA	10%	12,5	0,6	25	10 menit	3	1	0	4
9	PVA	10%	15	0,6	10	10 menit	2	3	3	8
10	PVA	10%	15	0,6	15	10 menit	2	3	2	7
11	PVA	10%	15	0,6	20	10 menit	2	2	1	5
12	PVA	10%	15	0,6	25	10 menit	3	1	1	5
13	PVA	10%	16,5	0,6	10	10 menit	3	3	3	9
14	PVA	10%	16,5	0,6	15	10 menit	2	2	2	6
15	PVA	10%	16,5	0,6	20	10 menit	2	2	1	5
16	PVA	10%	16,5	0,6	25	10 menit	3	2	1	6

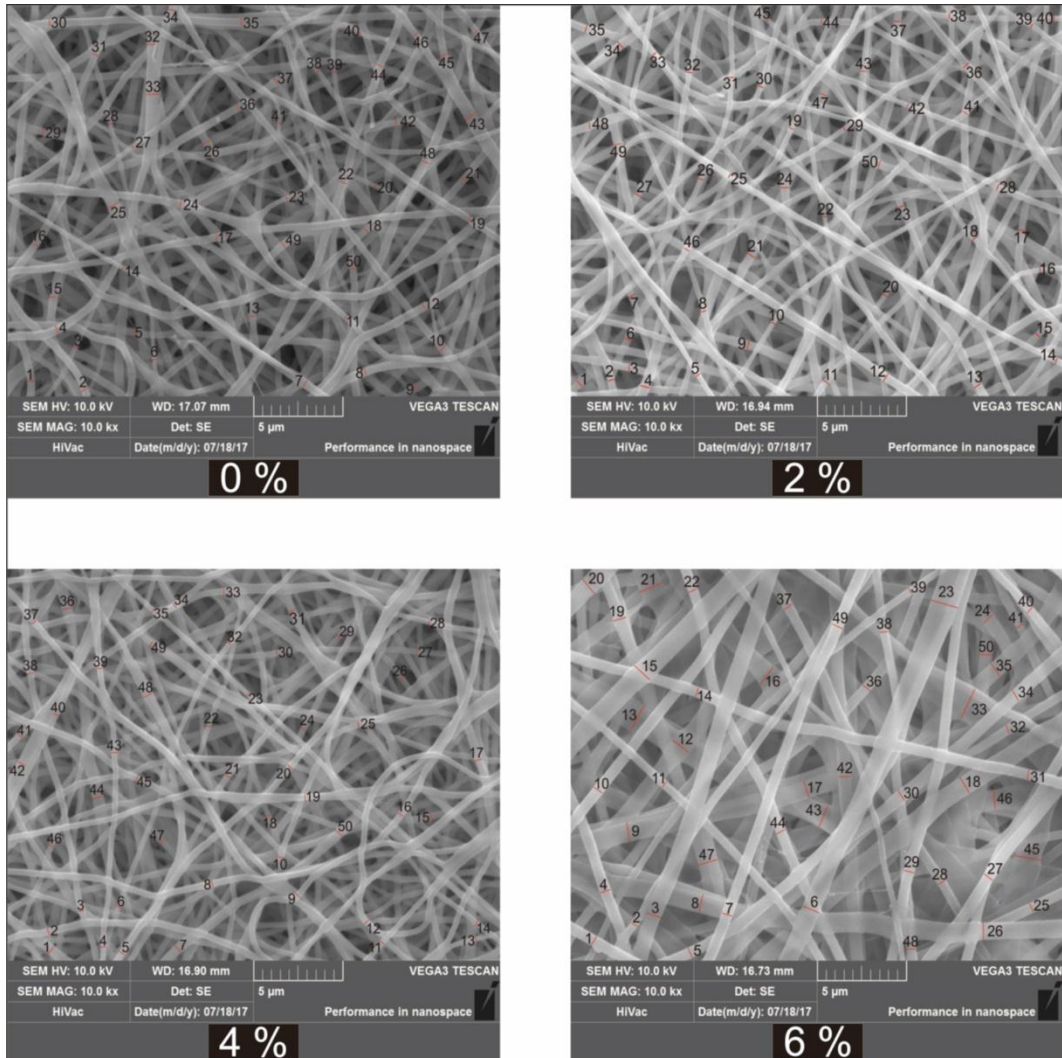
## B. Hasil pengujian tarik

Tabel Hasil pengujian tarik membran serat nano PVA/*Aloe vera*

No	Sampel	a0 (mm)	b0 (mm)	Fmax (N)	Tensil Strength (Mpa)	Rata-rata Tegangan	Standar Deviasi Tegangan
1	0%	0,04243	10	1,9811	4,669	4,980	1,627
2	0%	0,03935	10	2,9773	7,566		
3	0%	0,04981	10	3,357	6,740		
4	0%	0,1187	10	2,3255	1,959		
5	0%	0,04919	10	1,7371	3,531		
6	2%	0,04612	10	2,0753	4,500	5,745	1,203
7	2%	0,04612	10	1,7467	3,787		
8	2%	0,0455	10	3,1403	6,902		
9	2%	0,03937	10	2,2964	5,833		
10	2%	0,04858	10	1,8586	3,826		
11	4%	0,06106	10	5,011	8,207	6,382	0,573
12	4%	0,05166	10	3,0538	5,911		
13	4%	0,06518	10	1,1451	1,757		
14	4%	0,05719	10	4,0148	7,020		
15	4%	0,06088	10	3,784	6,216		
16	6%	0,07564	10	2,0833	2,754	2,221	0,614
17	6%	0,07564	10	4,9505	6,545		
18	6%	0,04304	10	4,4387	10,313		
19	6%	0,05657	10	1,3345	2,359		
20	6%	0,05263	10	0,8157	1,550		

### C. Perhitungan diameter serat nano

#### Pengukuran diameter serat nano PVA/Aloe vera



### D. Hasil pengukuran diameter serat nano

Tabel hasil perhitungan diameter serat nano

Konsentrasi PVA/Aloevera											
0%			2%			4%			6%		
No.	Diameter	Rata-rata	No.	Diameter	Rata-rata	No.	Diameter	Rata-rata	No.	Diameter	Rata-rata
1	421.515		1	425.896		1	439.104		1	577.015	
2	413.236		2	373.726		2	358.815		2	422.516	
3	244.595		3	344.439		3	363.366		3	832.851	
4	423.790		4	554.011		4	299.698		4	618.558	
5	338.896		5	266.737		5	339.220		5	562.542	
6	215.743		6	434.196		6	255.645		6	1.023.080	
7	468.813		7	375.955		7	468.780		7	597.932	
8	399.817		8	316.271		8	363.765		8	1.000.149	
9	443.294		9	466.096		9	356.691		9	1.035.760	
10	498.270		10	230.342		10	305.602		10	579.615	
11	282.307		11	272.767		11	288.417		11	427.029	
12	411.518		12	437.124		12	322.007		12	1.139.318	
13	367.616		13	427.407		13	251.788		13	1.510.119	
14	220.500		14	311.833		14	285.635		14	518.978	
15	462.268		15	341.917		15	365.124		15	1.205.836	
16	410.229		16	221.672		16	352.165		16	1.234.168	
17	421.801	384.059	17	384.202	342.137	17	383.843	337.692	17	945.835	819.412
18	362.911		18	263.132		18	284.576		18	997.684	
19	323.144		19	273.044		19	342.583		19	780.661	
20	209.169		20	269.119		20	340.044		20	999.017	
21	383.041		21	444.764		21	300.622		21	1.360.385	
22	457.789		22	238.643		22	257.332		22	541.191	
23	232.795		23	293.175		23	250.924		23	1.545.122	
24	380.984		24	458.891		24	343.671		24	658.210	
25	721.787		25	271.935		25	310.830		25	512.473	
26	448.994		26	283.036		26	309.518		26	894.260	
27	227.804		27	338.639		27	287.339		27	619.729	
28	230.853		28	322.825		28	259.723		28	503.246	
29	377.301		29	245.485		29	291.734		29	582.103	
30	403.050		30	305.781		30	307.539		30	676.030	
31	366.063		31	282.739		31	448.201		31	541.135	
32	477.474		32	296.528		32	232.977		32	452.590	
33	789.420		33	318.509		33	338.920		33	1.566.855	
34	386.240		34	464.129		34	358.798		34	682.693	

35	426.355	35	368.296	35	258.151	35	863.931
36	401.228	36	414.308	36	404.126	36	519.606
37	435.846	37	430.386	37	356.691	37	533.579
38	246.383	38	278.947	38	370.811	38	460.277
39	245.468	39	264.264	39	322.309	39	377.320
40	246.753	40	262.223	40	350.242	40	428.150
41	184.895	41	304.852	41	345.247	41	455.340
42	347.448	42	261.226	42	466.566	42	686.446
43	714.732	43	325.834	43	319.338	43	1.185.090
44	415.937	44	333.925	44	407.530	44	546.977
45	400.410	45	245.834	45	317.036	45	1.513.566
46	374.012	46	347.880	46	290.241	46	1.041.770
47	334.903	47	456.544	47	328.366	47	1.107.861
48	469.143	48	401.551	48	460.357	48	1.316.946
49	383.621	49	435.740	49	343.434	49	634.684
50	352.774	50	420.082	50	479.177	50	712.744

# LAMPIRAN 2

## LAMPIRAN 2

651/PS/07/17

12.07.2017

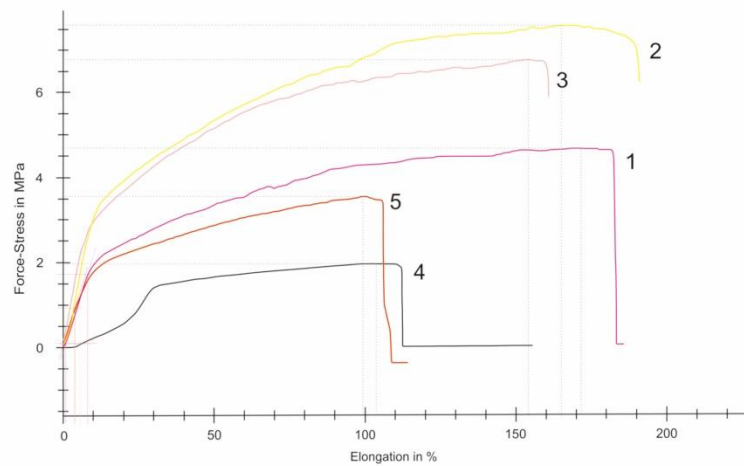
### Parameter table:

Heading :  
Company name: 651/PS/07/17  
Customer : Alif Nur Widodo  
Test speed : 10 mm/min  
Tester : Rachmat  
Test standard : Tensile strength  
Material : PVA + Aloevera 0%

### Results :

Nr	a0 mm	b0 mm	Lc mm	FMax N	Tensile Strength MPa	Strain at FMax %
1	0,04243	10	20	1,9811	4,6690	171,1449
2	0,03935	10	20	2,9733	7,5662	165,9068
3	0,04981	10	20	3,3570	6,7395	153,9307
4	0,01187	10	20	2,3255	1,9591	104,2842
5	0,04919	10	20	1,7371	3,5313	98,8060

### Series graphics:



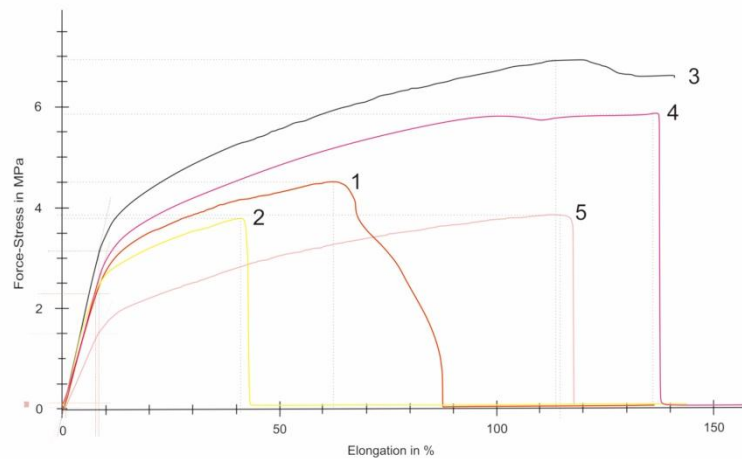


**Parameter table:**

Heading :  
 Company name: 651/PS/07/17  
 Customer : Alif Nur Widodo  
 Test speed : 10 mm/min  
 Tester : Rachmat  
 Test standard : Tensile strength  
 Material : PVA + Aloe vera 2%

**Results :**

Nr	a0 mm	b0 mm	Lc mm	FMax N	Tensile Strength MPa	Strain at FMax %
1	0,04612	10	20	2,0753	4,4998	63,4317
2	0,04612	10	20	1,7467	3,7874	41,6602
3	0,0455	10	20	3,1403	6,9017	114,7808
4	0,03937	10	20	2,2964	5,8329	136,3359
5	0,04858	10	20	1,8586	3,8259	114,3028

**Series graphics:**

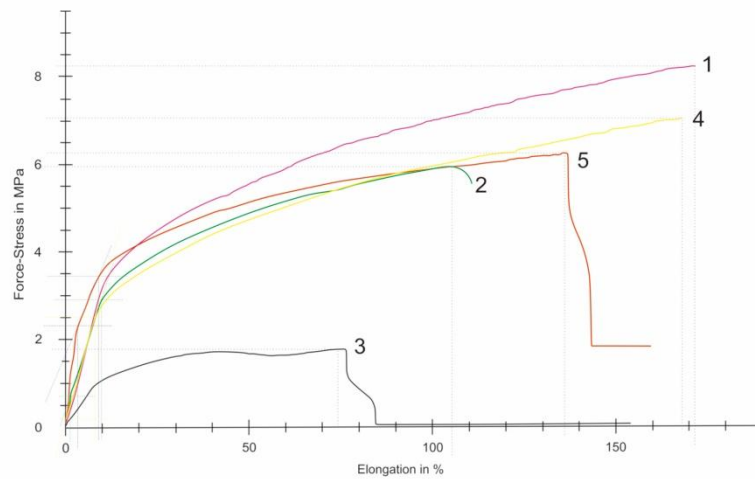
**Parameter table:**

Heading :  
 Company name: 651/PS/07/17  
 Customer : Alif Nur Widodo  
 Test speed : 10 mm/min

Tester : Rachmat  
 Test standard : Tensile strength  
 Material : PVA + Aloevera 2%

**Results :**

Nr	a0 mm	b0 mm	Lc mm	FMax N	Tensile Strength MPa	Strain at FMax %
1	0,06106	10	20	5,0110	8,2067	171,1982
2	0,05166	10	20	3,0538	5,9114	104,0429
3	0,06518	10	20	1,1451	1,7568	74,5865
4	0,05719	10	20	4,0148	7,0201	167,6989
5	0,06088	10	20	3,7840	6,2156	136,3484

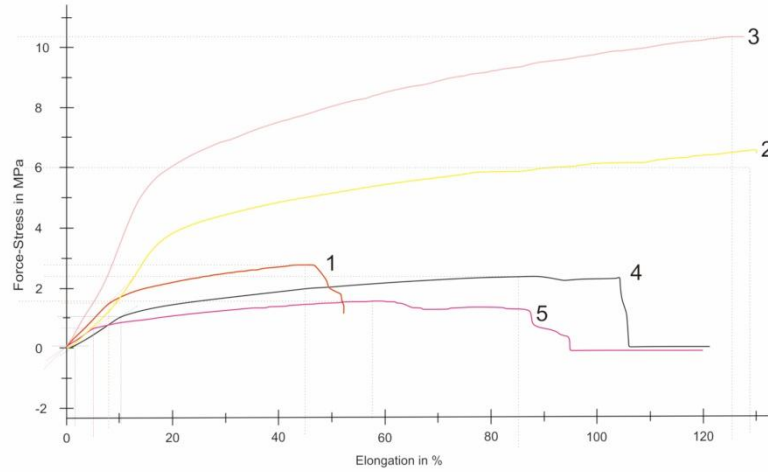
**Series graphics:**

**Parameter table:**

Heading :  
 Company name : 651/PS/07/17  
 Customer : Alif Nur Widodo  
 Test speed : 10 mm/min  
 Tester : Rachmat  
 Test standard : Tensile strength  
 Material : PVA + Aloe vera 2%

**Results :**

Nr	a0 mm	b0 mm	Lc mm	FMax N	Tensile Strength MPa	Strain at FMax %
1	0,07564	10	20	2,0833	2,7542	45,7395
2	0,07564	10	20	4,9505	6,5448	129,9220
3	0,04304	10	20	4,4387	10,3130	126,7365
4	0,05657	10	20	1,3345	2,3591	87,1697
5	0,05263	10	20	0,8157	1,5498	58,8438

**Series graphics:**



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**CERTIFICATE OF ANALYSIS**

Product Name:	Aloe vera Extract 10:1		
Batch No.:	KC150527	Manufacture Date :	May, 27, 2016
Report Date :	May, 27, 2016	Expiry Date:	May, 26, 2016

Items	Specifications	Results
Appearance	Yellow green fine powder	Conforms
Odor	Characteristic	Conforms
Identification	Identical to R.S. sample	Conforms
Extract ratio	10 : 1	Conforms
Used Part	Stem	Conforms
Extract solvent	Water	Conforms
Sieve Analysis	100 % pass 80 mesh	Conforms
Loss On Drying	Max 5.0 %	3.92%
Ash	Max 10.0 %	0.18%
Bulk Density	40~60g/100ml	59g/100ml
Tap Density	60~90g/100ml	72g/100ml
Lead	Max 3.0ppm	0.0909ppm
Arsenic	Max 2.0ppm	0.0133ppm
Cadmium	Max 1.00ppm	0.0128ppm
Mercury	Max 0.1ppm	0.0309ppm
Solvents Residue	Meet Eur.Ph.7.0 <5.4>	Conforms
Pesticides Residue	Meet USP Requirements	Conforms
Total Plat Caunt	Max 1,000cfu/g	35cfu/g
Total Yeast & Mold	Max 100cfu/g	10cfu/g
<i>E. Coli.</i>	Negative	Negative
<i>Salmonella</i>	Negative	Negative

**CONCLUTION: CONFORM TO THE SPECIFICATION**

Package: 25kg/drum, Packed in paper-drums and two plastic-bags inside

Storage: Store in a well-closed container away from moisture, light, oxygen

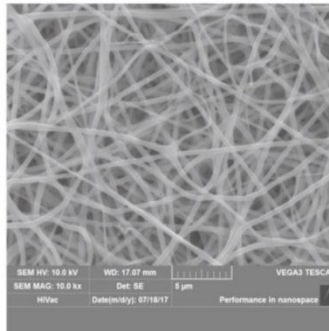
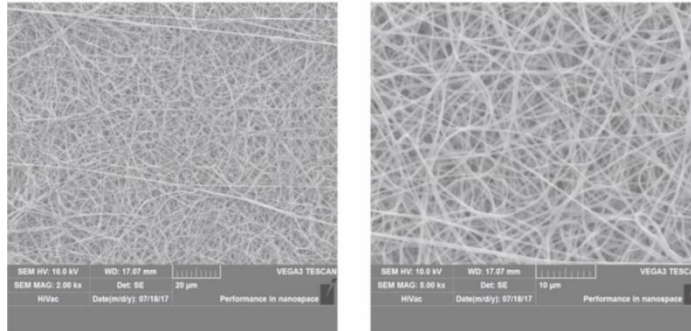
Shelf Life: 24 months under the conditions above and in its original packaging

# LAMPIRAN 3

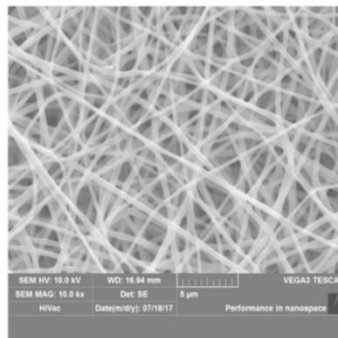
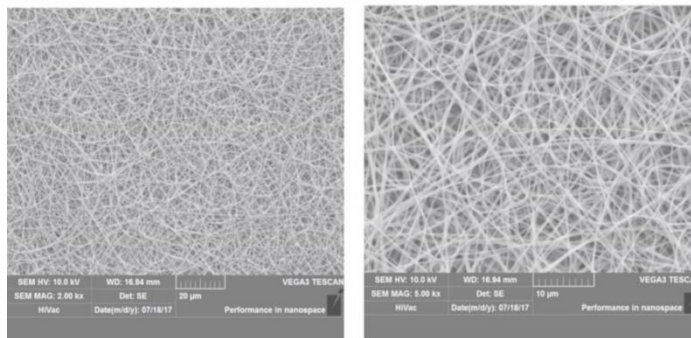
### LAMPIRAN 3

#### A. Hasil pengujian SEM

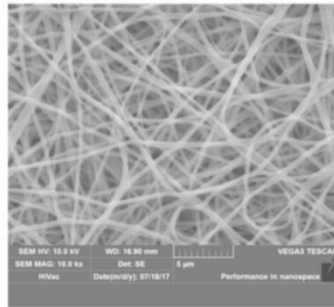
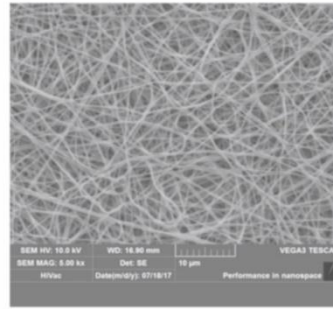
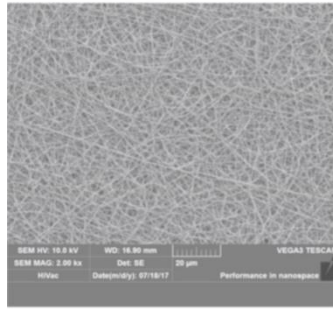
##### Konsentrasi PVA/Aloe vera 0%



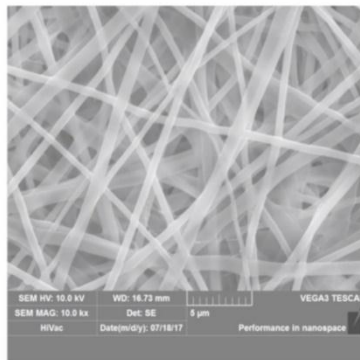
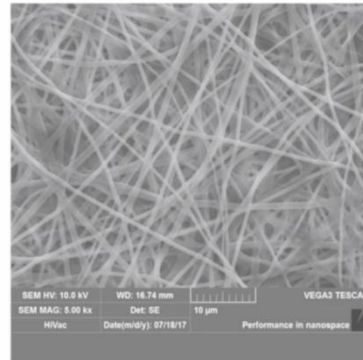
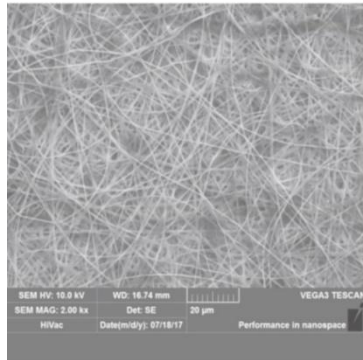
##### Konsentrasi PVA/Aloe vera 2%



### Konsentrasi PVA/Aloe vera 4%



### Konsentrasi PVA/Aloe vera 6%





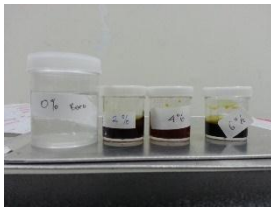
## B. Foto Penelitian



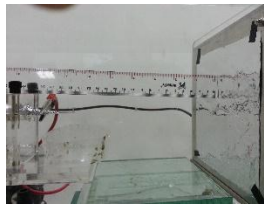
Penimbangan bahan larutan PVA



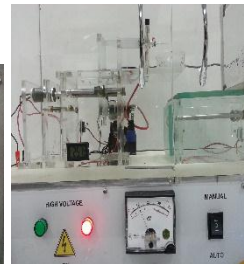
Pembuatan larutan PVA



Larutan PVA/Aloe vera



Pengukuran jarak TCD



Pengaturan tegangan



Optimasi kondisi



Membran serat nano PVA



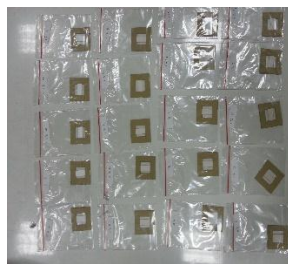
Membran serat nano PVA/Aloe vera



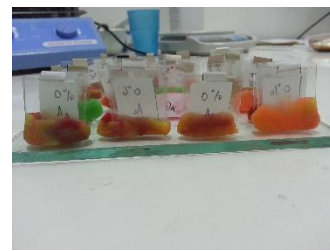
Sampel uji tarik ASTM D 882



Sampel SEM

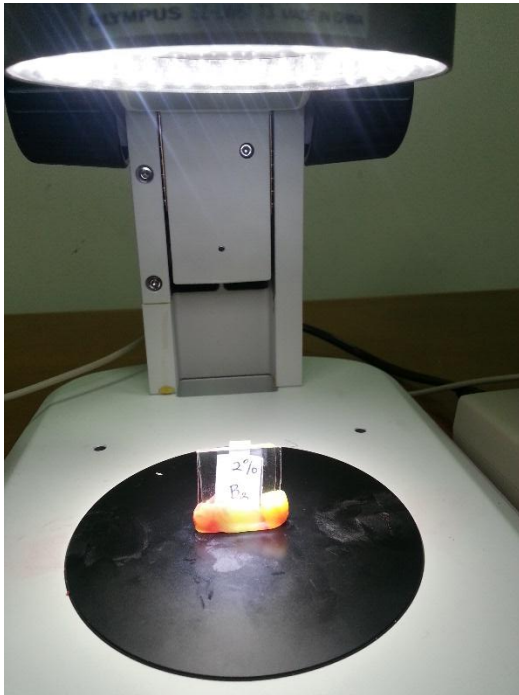


Sampel uji tarik



Sampel uji ketebalan





Pengukuran ketebalan menggunakan OM



Mesin uji tarik Zwick 0.5