

## LAMPIRAN

**Lampiran 1.** Analisis diameter serat nanofiber membran dalam satuan nanometer

N0	PVA_AV dengan Pemanasan		PVA_AV tanpa Pemanasan		PVA_ET_AV dengan Pemanasan		PVA_ET_AV tanpa Pemanasan	
	A1	A2	B1	B2	C1	C2	D1	D2
1	287	275	239	235	175	454	112	143
2	253	266	211	155	200	179	141	158
3	245	283	194	232	157	210	137	166
4	217	274	140	206	171	191	159	117
5	258	266	231	213	232	167	173	135
6	262	218	184	245	232	195	100	142
7	244	217	228	228	286	209	152	118
8	226	284	305	156	212	206	167	149
9	286	276	208	158	156	209	107	120
10	237	220	180	233	209	253	153	135
11	234	252	129	216	195	161	110	127
12	244	263	249	192	171	183	103	120
13	281	228	184	368	252	225	129	130
14	259	276	184	179	167	181	89	75
15	220	295	185	203	228	343	126	94
16	284	264	362	240	176	178	162	168
17	284	233	317	203	163	179	122	138
18	262	268	295	186	153	240	97	132
19	251	288	175	310	222	159	156	92
20	249	274	194	235	157	155	149	95
21	272	261	205	259	216	215	139	113
22	211	253	124	187	177	188	144	140
23	252	288	180	206	188	172	122	110
24	250	287	389	243	157	139	279	99
25	295	243	291	249	192	214	250	119
26	250	289	165	166	180	212	142	107
27	259	276	270	228	232	198	129	88
28	234	260	171	163	211	122	197	126
29	253	208	183	186	162	172	86	107
30	241	279	154	187	216	237	146	149
31	215	253	134	337	219	304	138	135
32	272	250	169	267	218	179	164	161
33	250	265	209	213	164	144	209	128

34	246	227	265	289	201	221	132	141
35	224	223	310	344	193	188	150	146
36	248	276	139	205	205	173	154	140
37	243	237	128	398	186	164	151	141
38	233	269	178	253	211	191	119	132
39	268	265	177	147	165	198	107	164
40	274	258	106	182	205	200	194	190
41	212	239	228	193	313	182	158	154
42	231	290	182	139	212	182	194	102
43	240	257	169	195	199	230	278	151
44	230	273	197	243	410	194	158	129
45	279	236	174	190	226	372	126	95
46	213	272	166	212	182	155	127	118
47	240	289	181	341	175	160	126	129
48	256	287	249	195	185	170	170	124
49	291	313	157	247	176	176	192	190
50	360	220	260	191	209	182	137	114
Rata-Rata	252.4	261.2	206.0	224.9	201.9	202.2	149.2	129.9
	<b>PVA_AV dengan Pemanasan</b>	<b>PVA_AV tanpa Pemanasan</b>	<b>PVA_ET_AV dengan Pemanasan</b>	<b>PVA_ET_AV tanpa Pemanasan</b>				
Rata-Rata Semua	256.85864	215.54173	202.08092	139.57916				
STDV	25.96381462	60.12053868	51.42022312	35.49380101				

## Lampiran 2. Hasil Uji Viskositas



Laboratorium Uji  
**TEKNOLOGI PANGAN DAN HASIL PERTANIAN**  
FAKULTAS TEKNOLOGI PERTANIAN  
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### HASIL ANALISA

NO:415/PS/04/19

Lab. Penguji : Rekayasa Proses Pengolahan  
Tanggal Pengujian : 8 April 2019  
Sampel : PVA  
Jenis Analisa : Viskositas  
Alat : Viskometer  
Merk : Brookfield  
Spindle : 62  
Kecepatan : 60 rpm  
Satuan : cP

No	Sampel/Kode	Hasil Analisa	
		UL 1	UL 2
1	PVA:ET:AV Panas	567,9	567,9
2	PVA:ET:AV Dingin	341,9	341,9
3	PVA:AV Panas	483,9	483,9
4	PVA:AV Dingin	334,9	334,9

Penyelia  
  
Aulia Ardhi, STP, M.Sc.

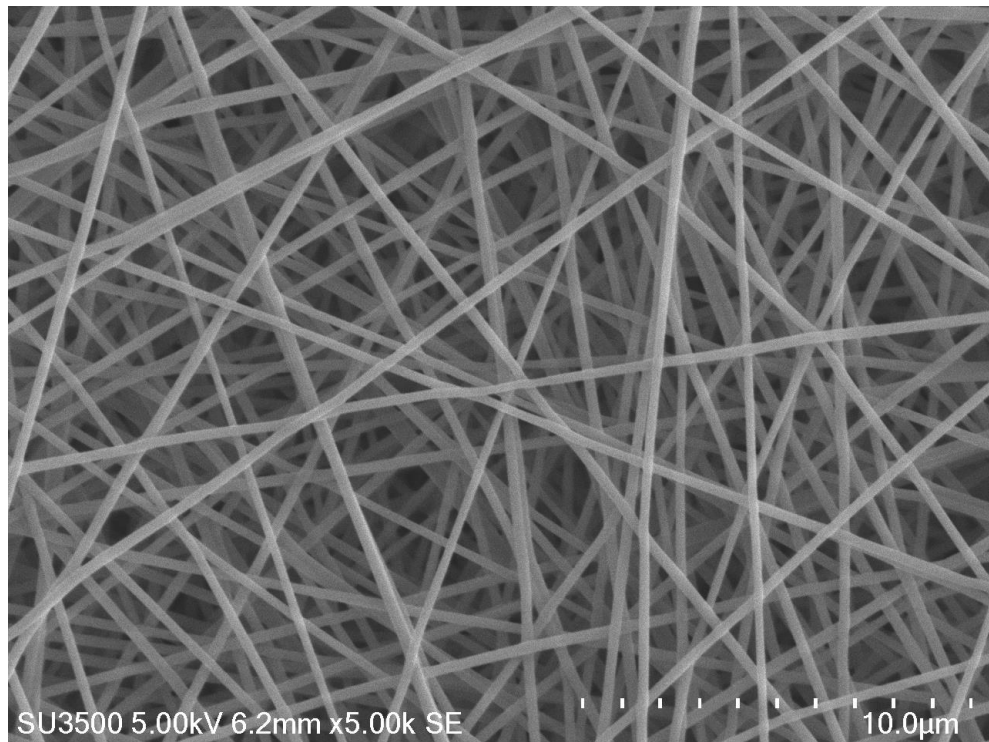
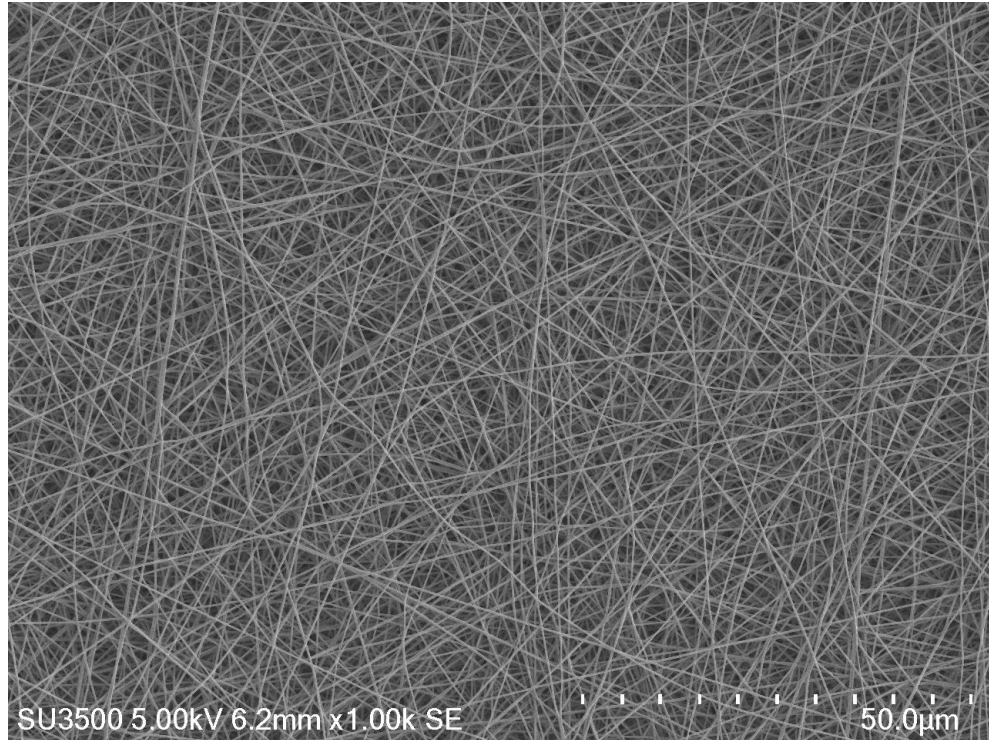
Yogyakarta, 10 April 2019  
Analisis

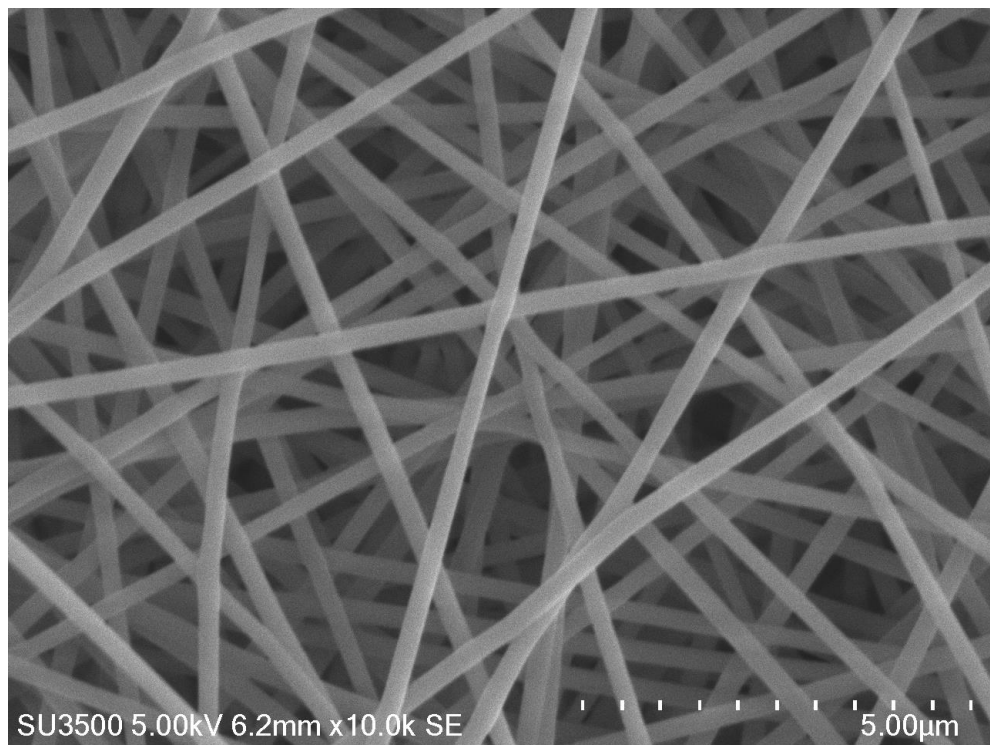
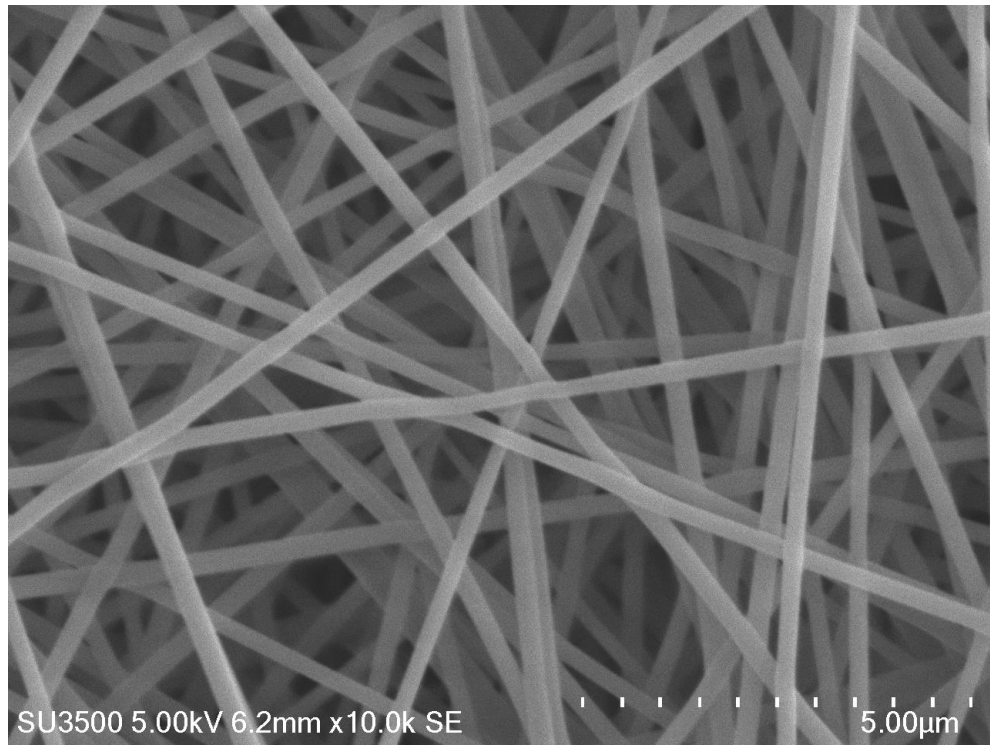
  
Rahmat Teguh S

NB: Hasil Analisa hanya berlaku untuk sampel yang dianalisa

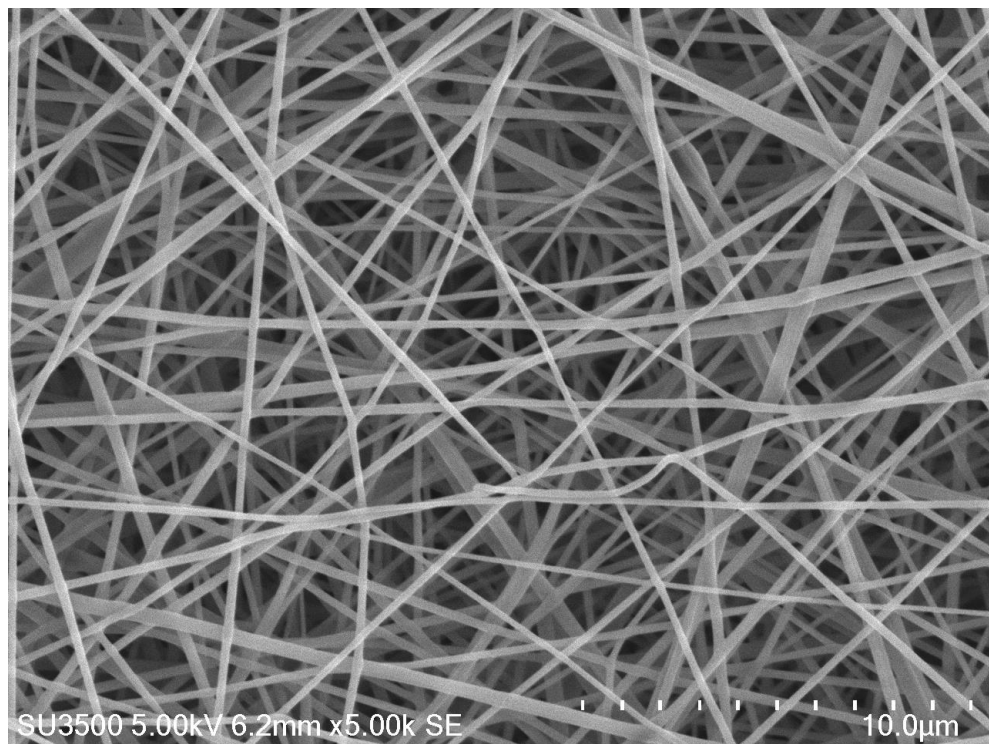
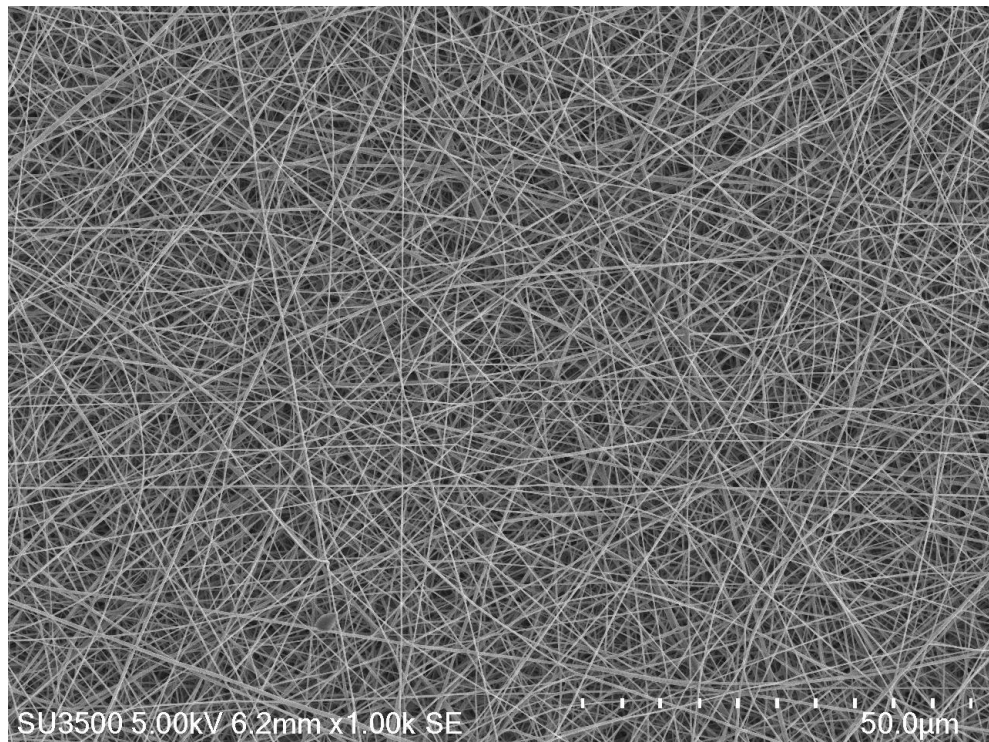
**Lampiran 3.** Hasil Scanning Electron Microscope

a. PVA\_ET\_AV dengan Pemanasan

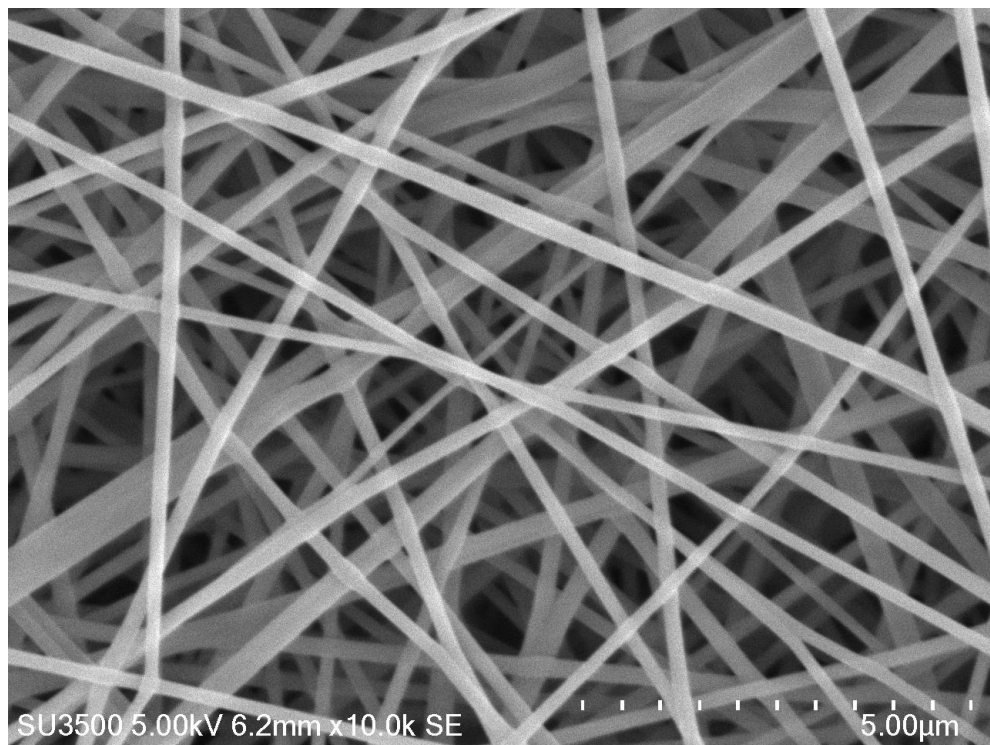
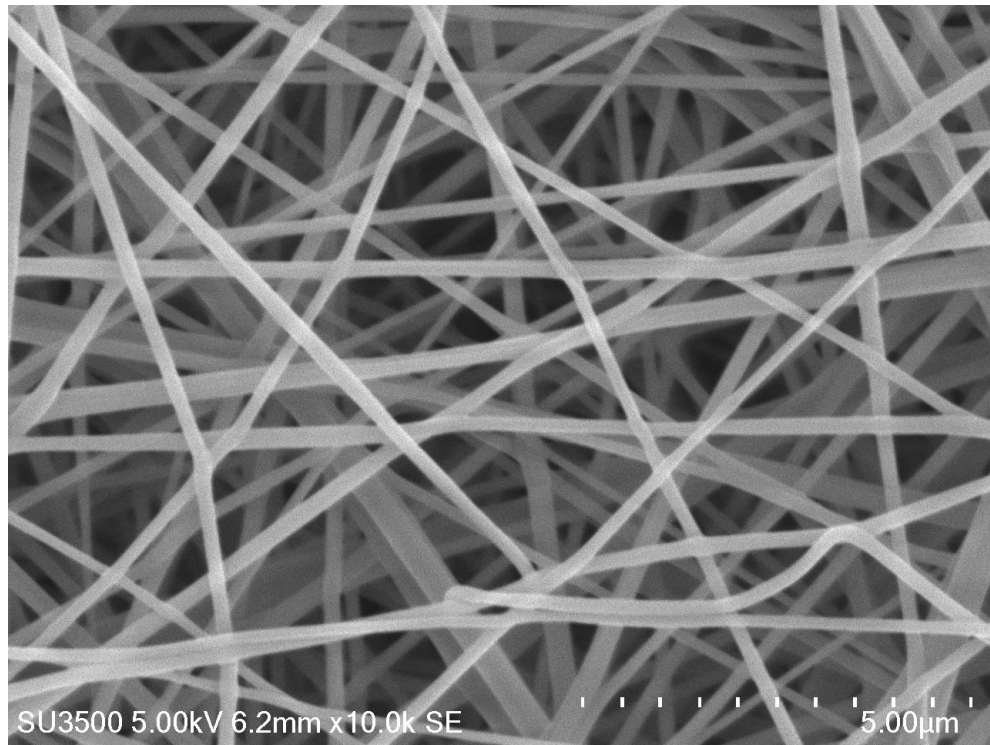




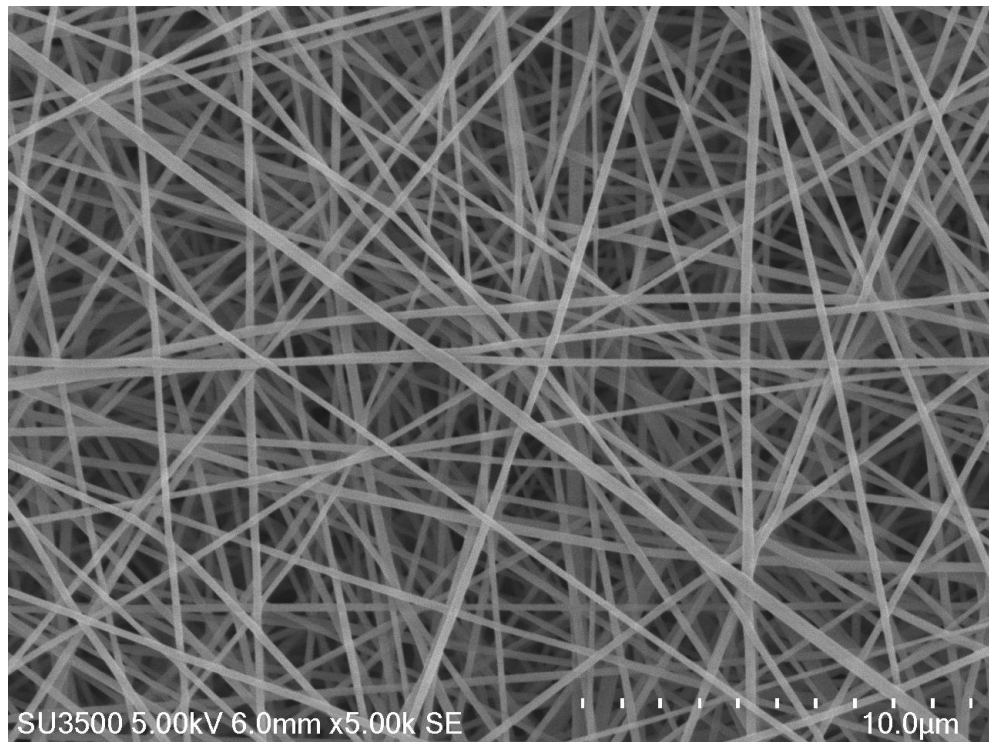
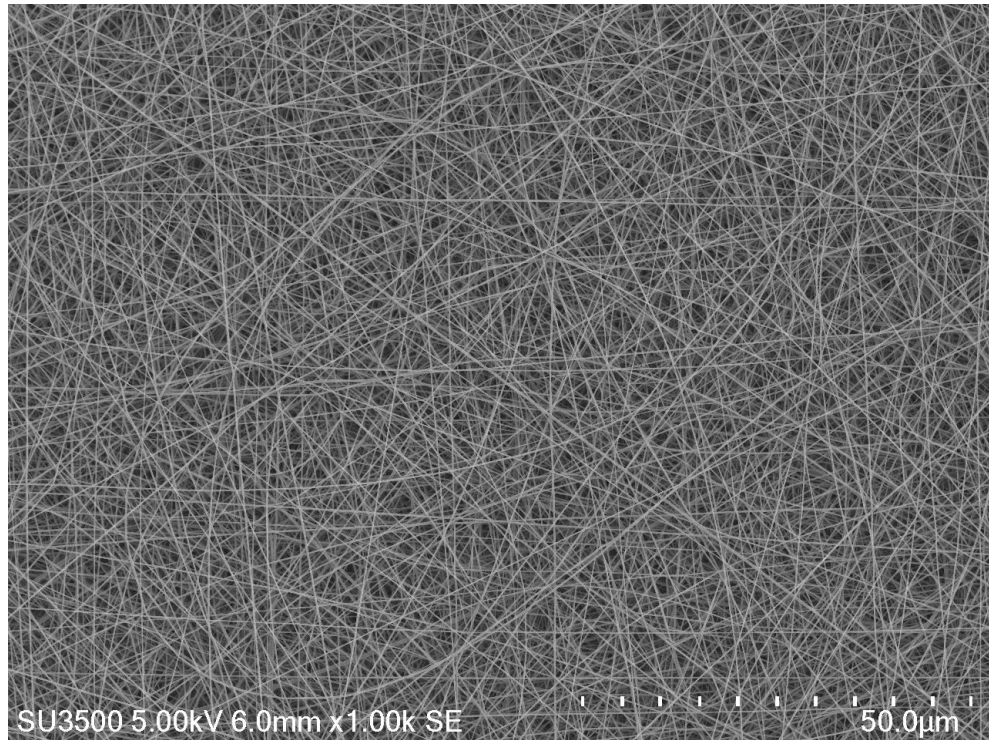
b. PVA\_ET\_AV tanpa Pemanasan



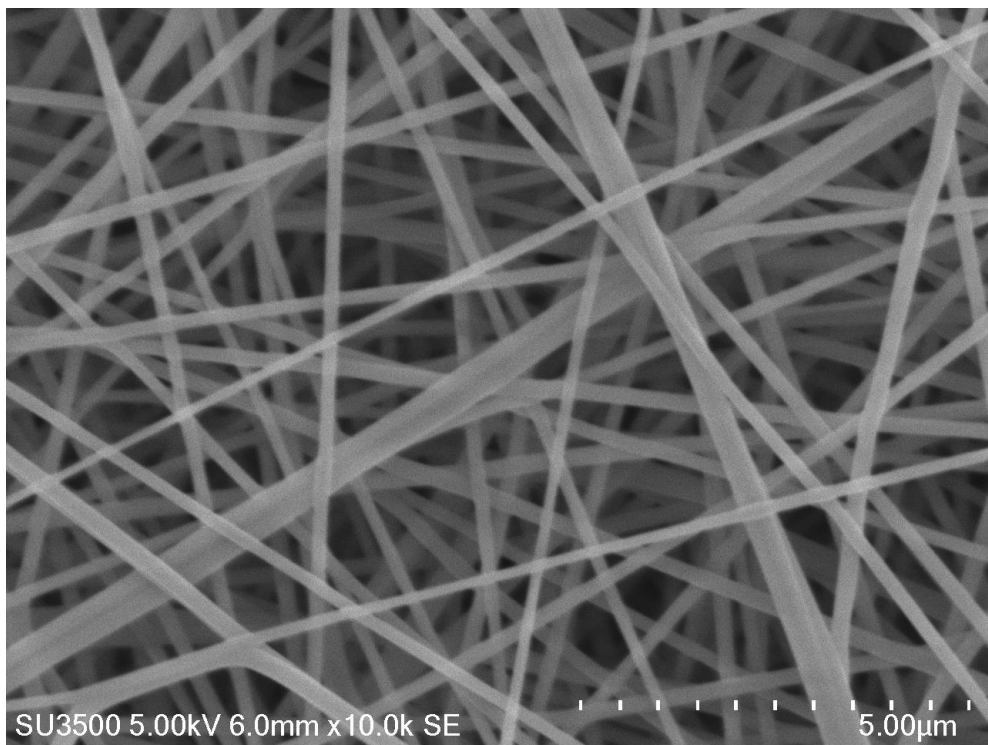
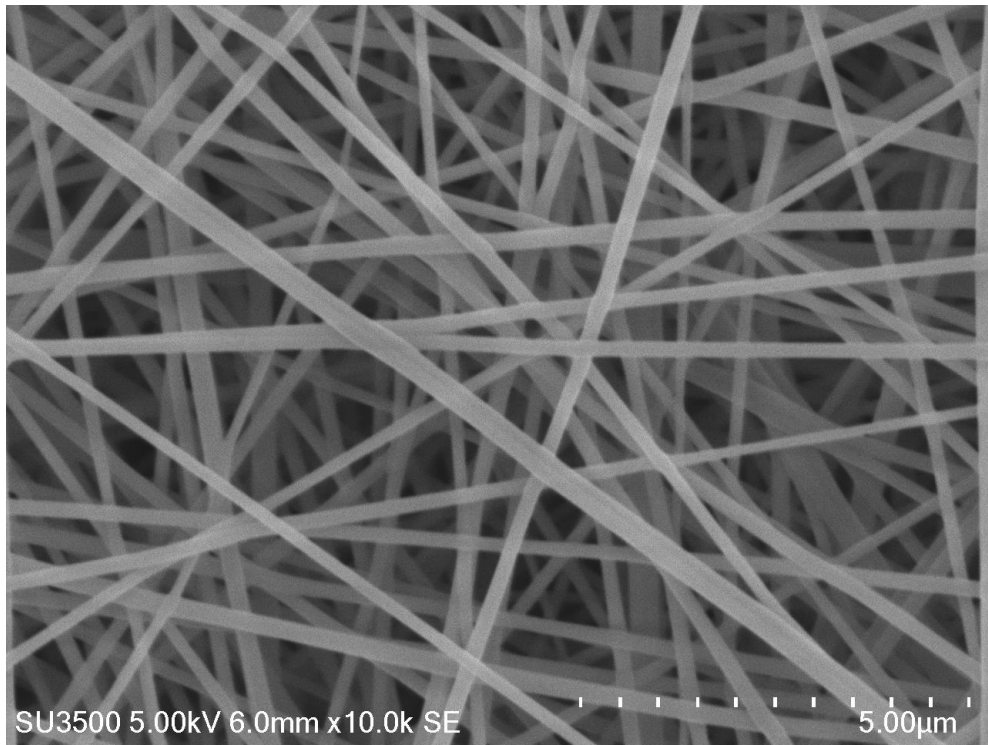




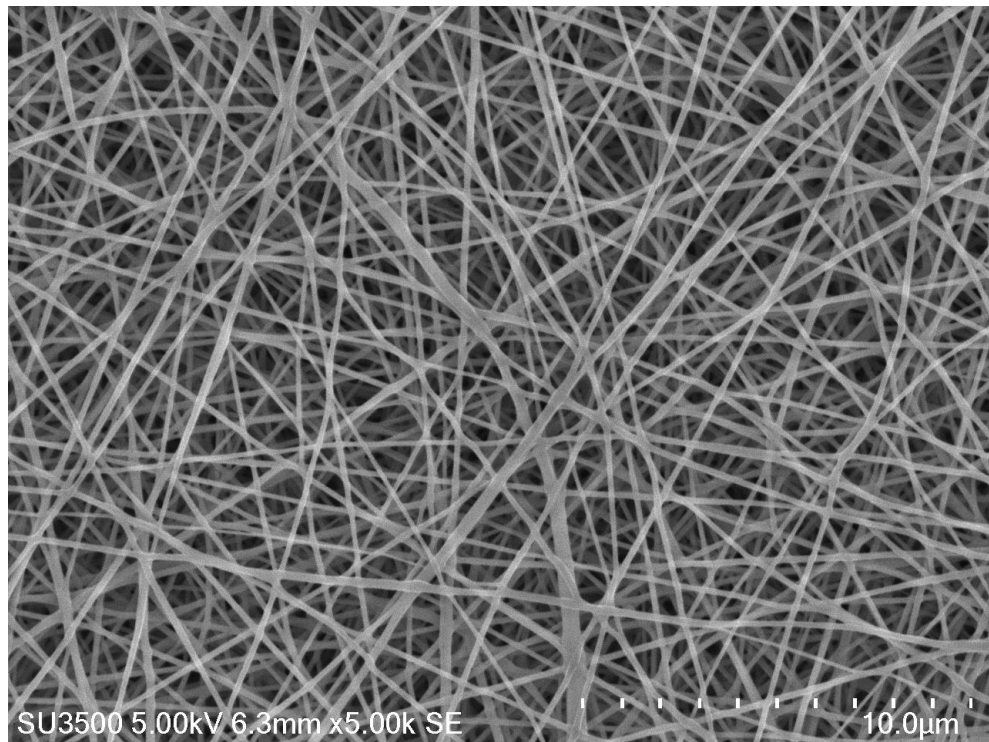
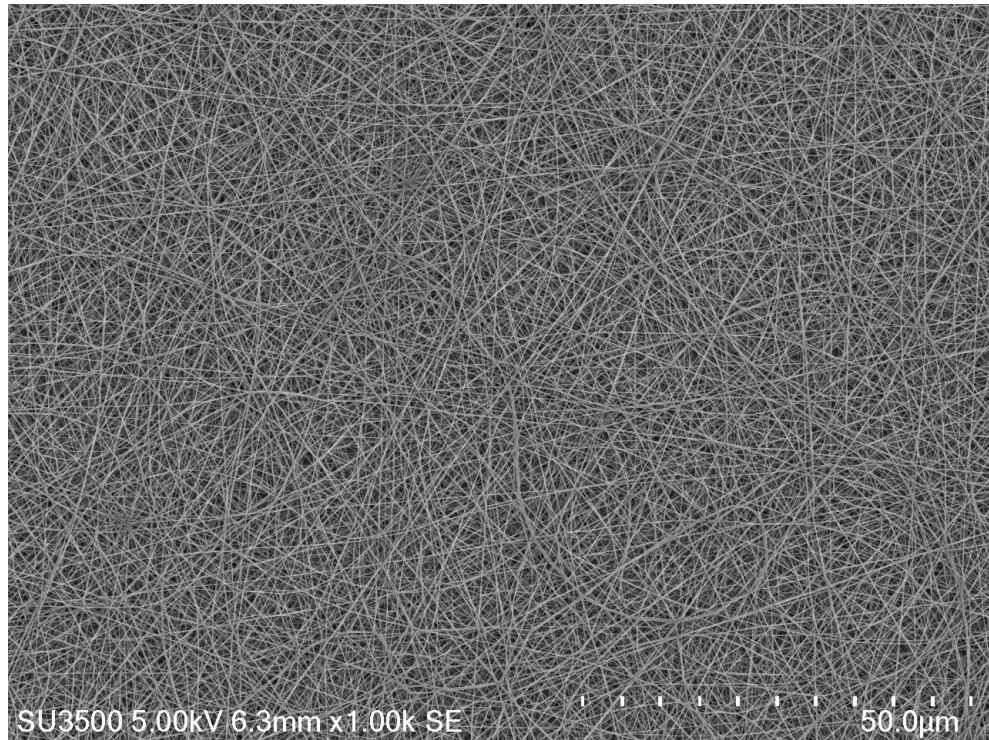
c. PVA\_AV dengan Pemanasan

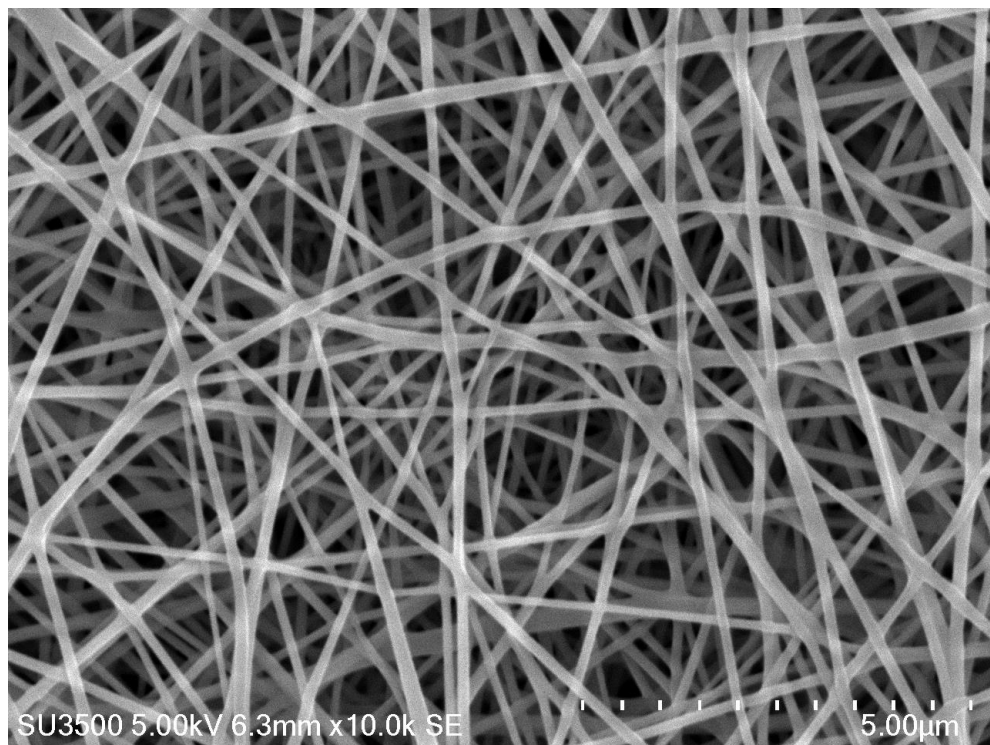
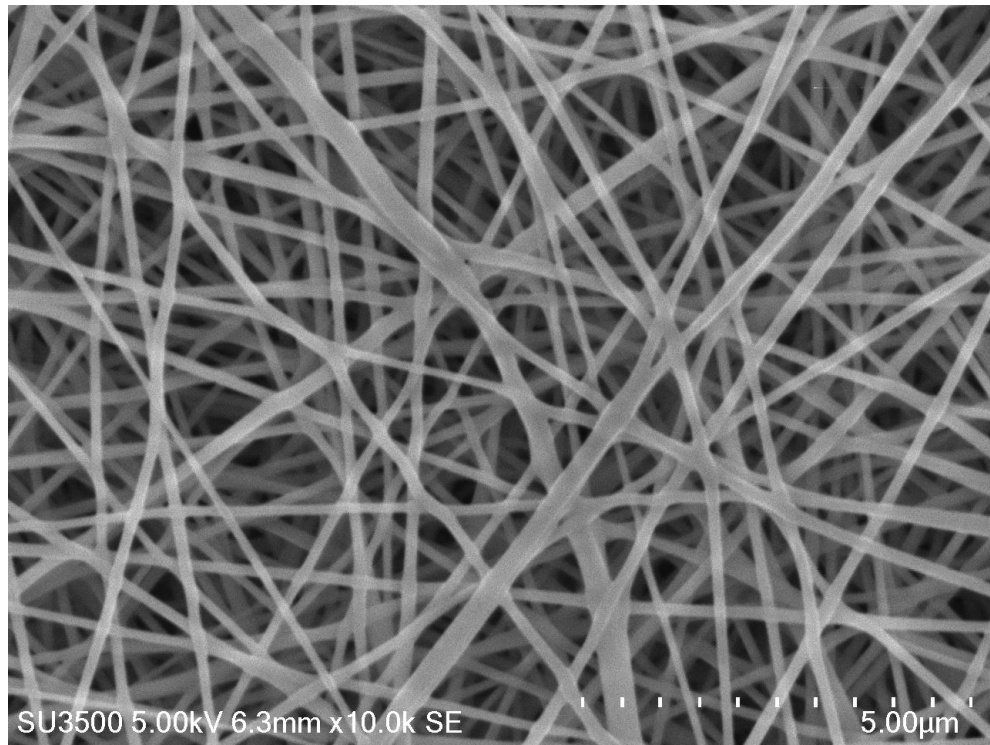






d. PVA\_AV tanpa Pemanasan

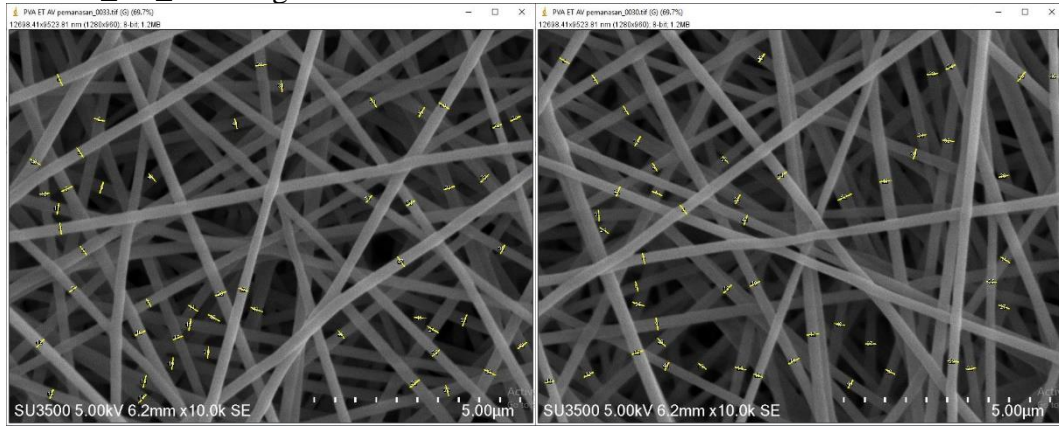




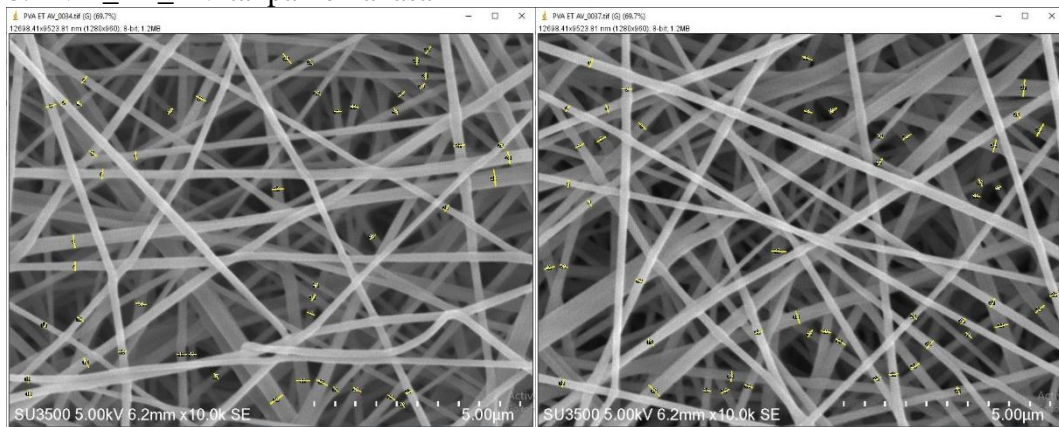


#### Lampiran 4. Hasil pengukuran diameter serat dengan software Image J

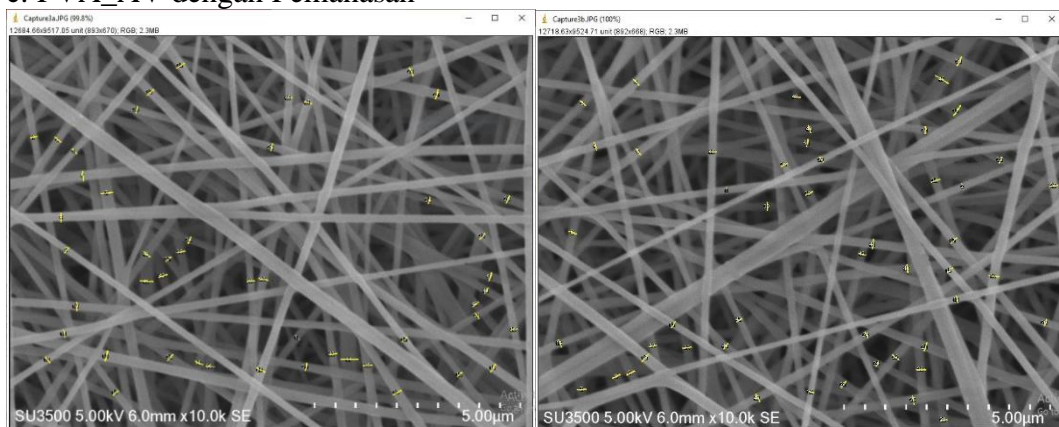
##### a. PVA\_ET\_AV dengan Pemanasan



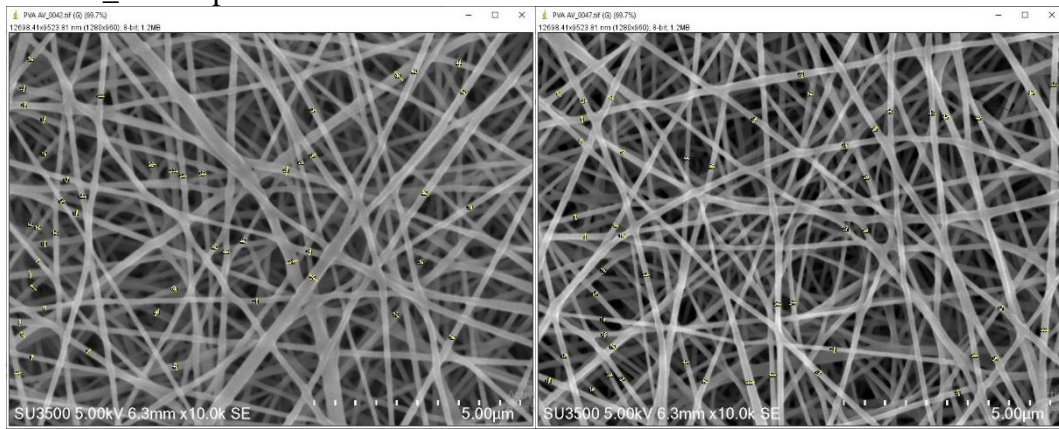
##### b. PVA\_ET\_AV tanpa Pemanasan



##### c. PVA\_AV dengan Pemanasan



d. PVA\_AV tanpa Pemanasan



**Lampiran 5.** Analisis Hasil Uji Tarik

Spesimen	Nilai Kuat Tarik Membran Nanofiber (MPa)			
	PVA_ET_AV dengan pemanasan	PVA_ET_AV tanpa pemanasan	PVA_AV dengan pemanasan	PVA_AV tanpa pemanasan
1	9.2281	7.1567	7.3101	7.9489
2	7.7457	8.3829	7.4574	8.7541
3	9.2907	8.8257	7.0572	7.9586
4	10.3812	9.5222	5.6316	8.6750
5	9.1483	12.0148	8.8527	8.8506
<b>Rata-rata</b>	<b>9.1588</b>	<b>9.1805</b>	<b>7.2618</b>	<b>8.43744</b>
<b>Standar Deviasi</b>	<b>0.9372</b>	<b>1.8033</b>	<b>1.1479</b>	<b>0.398840462</b>

Spesimen	Nilai Regangan Membran Nanofiber (MPa)			
	PVA_ET_AV dengan pemanasan	PVA_ET_AV tanpa pemanasan	PVA_AV dengan pemanasan	PVA_AV tanpa pemanasan
1	79.8461	28.2919	111.3201	38.5008
2	70.7530	36.9783	102.4117	49.0926
3	91.9604	23.3631	173.3550	70.7157
4	87.4586	12.982	115.4379	70.7157
5	19.4855	23.1943	111.0777	91.4959
<b>Rata-rata</b>	<b>69.9007</b>	<b>24.9619</b>	<b>122.7205</b>	<b>64.10414</b>
<b>Standar Deviasi</b>	<b>29.3097</b>	<b>8.7276</b>	<b>28.7004</b>	<b>20.72806865</b>

Spesimen	Nilai Modulus Elastisitas Membran Nanofiber (MPa)			
	PVA_ET_AV dengan pemanasan	PVA_ET_AV tanpa pemanasan	PVA_AV dengan pemanasan	PVA_AV tanpa pemanasan
1	89.63254593	190.7356948	34.26248548	128.2392027
2	105.7416268	190.7356948	58.02469136	128.2392027
3	129.9401198	184.0848806	58.02469136	128.2392027
4	150.1154734	162.1052632	58.02469136	121.1302211



5	217.0426065	184.4327177	105.6503198	120
<b>Rata-rata</b>	138.4945	182.4189	62.7974	125.1695658
<b>Standar Deviasi</b>	49.5940	11.8090	26.0718	4.222224746

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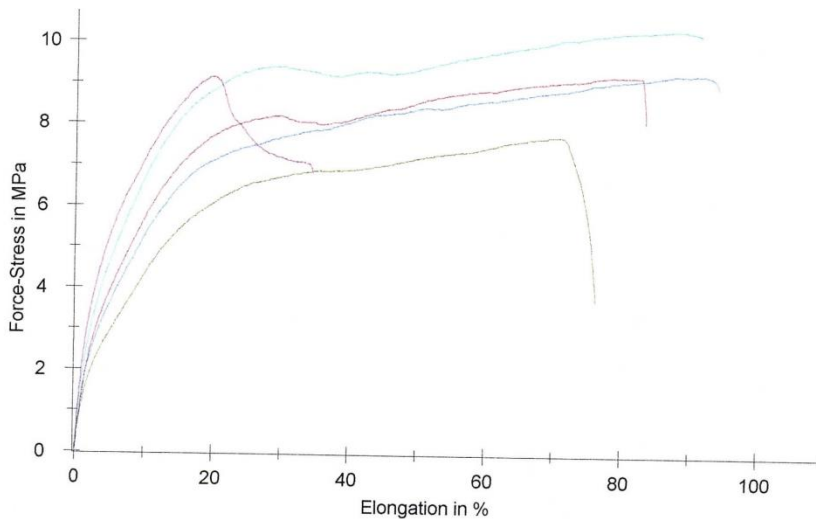
**Parameter table:**

Company name: 291/PS/03/19      Test standard : Tensile strength  
 Customer : M. Nabil Dhiyaulhaq      Material : PVA\_ET\_AV dg panas  
 Tester : Rachmat  
 Test speed: 10 mm/min

**Results:**

Nr	a0 mm	b0 mm	Lc mm	FMax N	Tensile Strength MPa	Strain at Fmax. %
7	0.08917	10	20	8.2287	9.2281	79.8461
12	0.1077	10	20	8.3406	7.7457	70.7530
13	0.07995	10	20	7.4279	9.2907	91.9604
15	0.07672	10	20	7.9644	10.3812	87.4586
16	0.07379	10	20	6.7505	9.1483	19.4855

**Series graphics:**



**Statistics:**

Series n = 5	a0 mm	b0 mm	Lc mm	FMax N	Tensile Strength MPa	Strain at Fmax. %
x	0.08546	10	20	7.7424	9.1588	69.9007
s	0.0137	0.000	0.000	0.6569	0.9372	29.3097
v	16.03	0.00	0.00	8.49	10.23	41.93

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**Parameter table:**

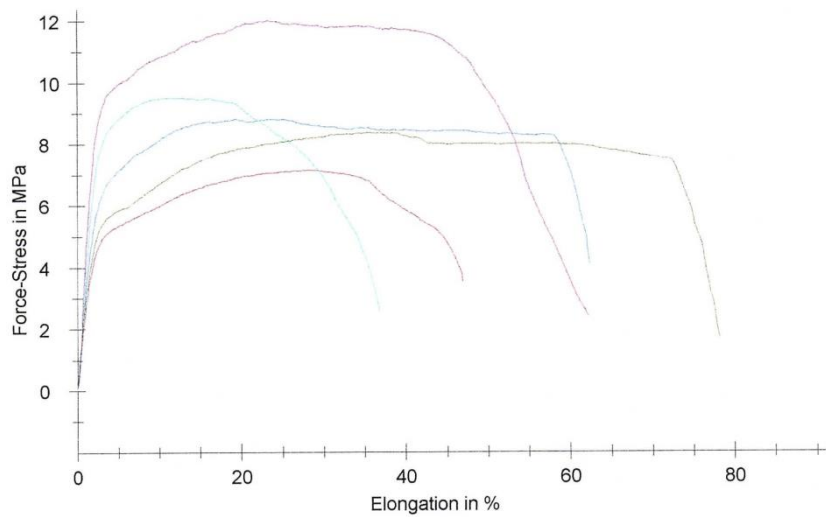
Company name: 180/PS/02/19  
Customer : M. Nabil Dhiyaulhaq Dz  
Tester : Rachmat

Test standard : Tensile strength  
 Material : PVA\_ET\_AV tanpa pemanasan  
 Test speed: 10 mm/min

### Results:

Nr	a0 mm	b0 mm	Lc mm	FMax N	Tensile Strength MPa	Strain at Fmax. %
1	0.08117	10	20	5.8091	7.1567	28.2919
2	0.07638	10	20	6.4029	8.3829	36.9783
3	0.07134	10	20	6.2963	8.8257	23.3631
4	0.07134	10	20	6.7932	9.5222	12.9820
5	0.06888	10	20	8.2758	12.0148	23.1943

### Series graphics:



### Statistics:

Series n = 5	a0 mm	b0 mm	Lc mm	FMax N	Tensile Strength MPa	Strain at Fmax. %
x	0.07382	10	20	6.7155	9.1805	24.9619
s	0.004932	0.000	0.000	0.9402	1.8033	8.7276
v	6.68	0.00	0.00	14.00	19.64	34.96

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**Parameter table:**

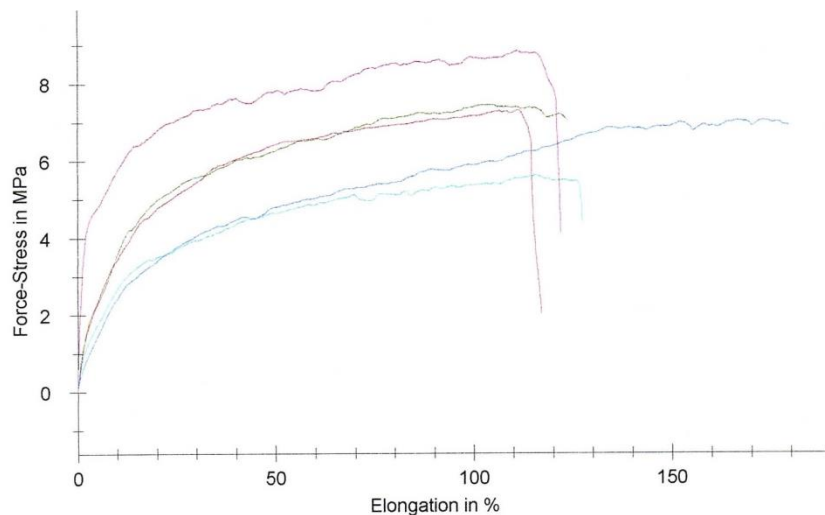
Company name : 180/PS/02/19  
 Customer : M. Nabil Dhiyaulhaq Dz  
 Tester : Rachmat  
 Test speed: 10 mm/min

Test standard : Tensile strength  
 Material : PVA\_AV dengan pemanasan

**Results:**

Nr	a0 mm	b0 mm	Lc mm	FMax N	Tensile Strength MPa	Strain at Fmax. %
1	0.07872	10	20	5.7545	7.3101	111.3201
2	0.05166	10	20	3.8525	7.4574	102.4117
3	0.07626	10	20	5.3818	7.0572	173.3550
4	0.08366	10	20	4.7114	5.6316	115.4379
5	0.0861	10	20	7.6221	8.8527	111.0777

**Series graphics:**



**Statistics:**

Series n = 5	a0 mm	b0 mm	Lc mm	FMax N	Tensile Strength MPa	Strain at Fmax. %
x	0.07528	10	20	5.4645	7.2618	122.7205
s	0.01377	0.000	0.000	1.4064	1.1479	28.7005
v	18.29	0.00	0.00	25.74	15.81	23.39

**Fakultas Teknologi Pertanian  
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**Parameter table:**

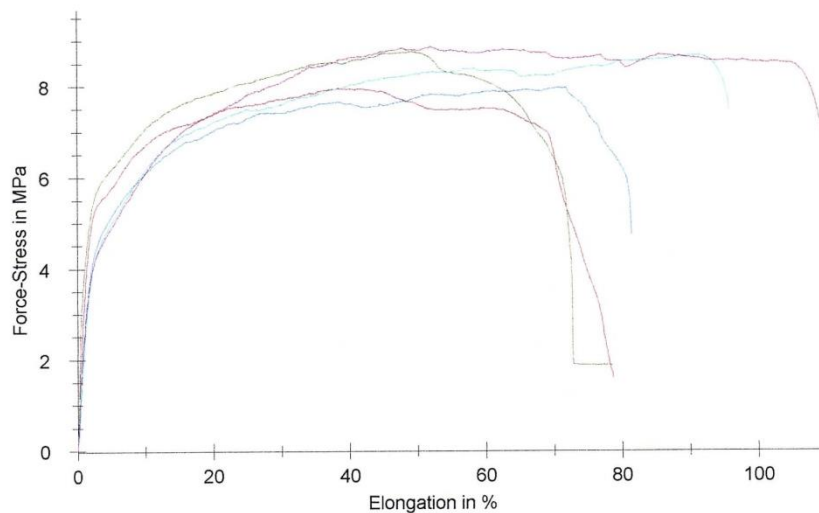
Company name: 180/PS/02/19  
 Customer : M. Nabil Dhiyaulhaq Dz  
 Tester : Rachmat  
 Test speed: 10 mm/min

Test standard : Tensile strength  
 Material : PVA\_AV tanpa pemanasan

**Results:**

Nr	a0 mm	b0 mm	Lc mm	FMax N	Tensile Strength MPa	Strain at Fmax. %
1	0.06642	10	20	5.2796	7.9489	38.5008
2	0.07134	10	20	6.2452	8.7541	49.0926
3	0.059	10	20	4.6956	7.9586	70.7157
4	0.06409	10	20	5.5598	8.6750	91.4959
5	0.05	10	20	4.5722	8.8506	51.9371

**Series graphics:**



**Statistics:**

Series n = 5	a0 mm	b0 mm	Lc mm	FMax N	Tensile Strength MPa	Strain at Fmax. %
$\bar{x}$	0.06217	10	20	5.2705	8.4374	60.3484
s	0.008124	0.000	0.000	0.6804	0.4459	20.9309
v	13.07	0.00	0.00	12.91	5.29	34.68



Lampiran 6. Certificate of Analysis Aloe Vera



KANGCARE BIOINDUSTRY CO., LTD

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Email: [sales@kangcare.com](mailto:sales@kangcare.com)

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

**CONCLUSION: 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