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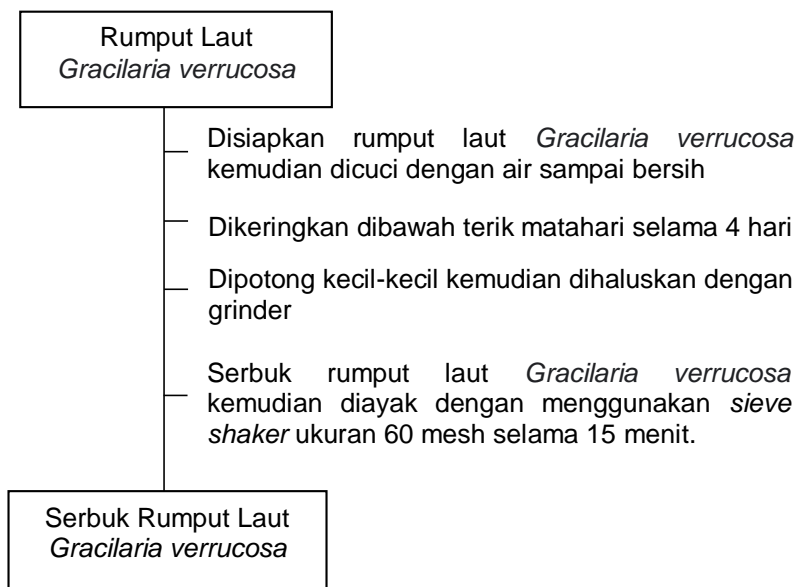
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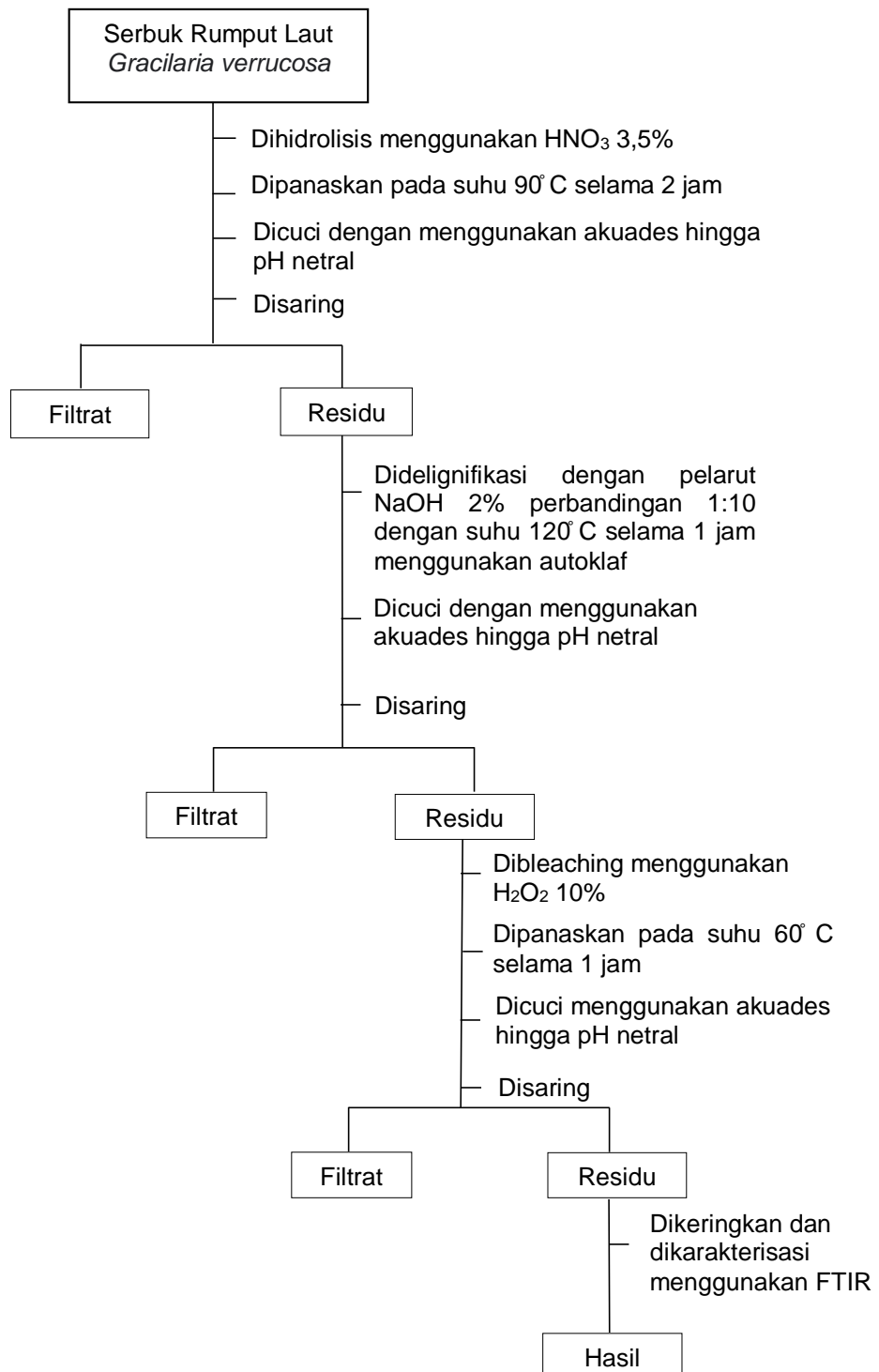
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LAMPIRAN 1. BAGAN KERJA PENELITIAN

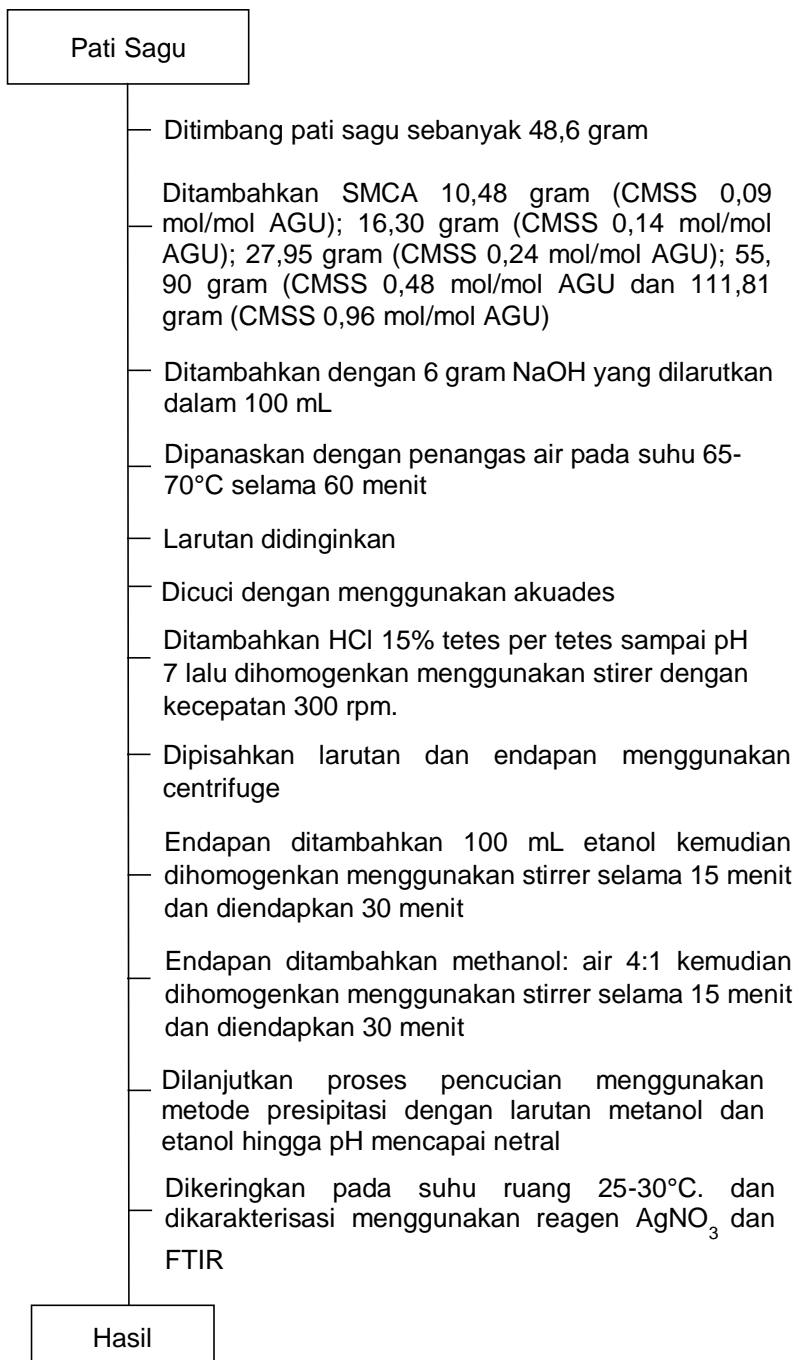
1. Preparasi Rumput Laut *Gracilaria verrucosa*



2. Isolasi Selulosa dari Rumput Laut *Gracilaria verrucosa*

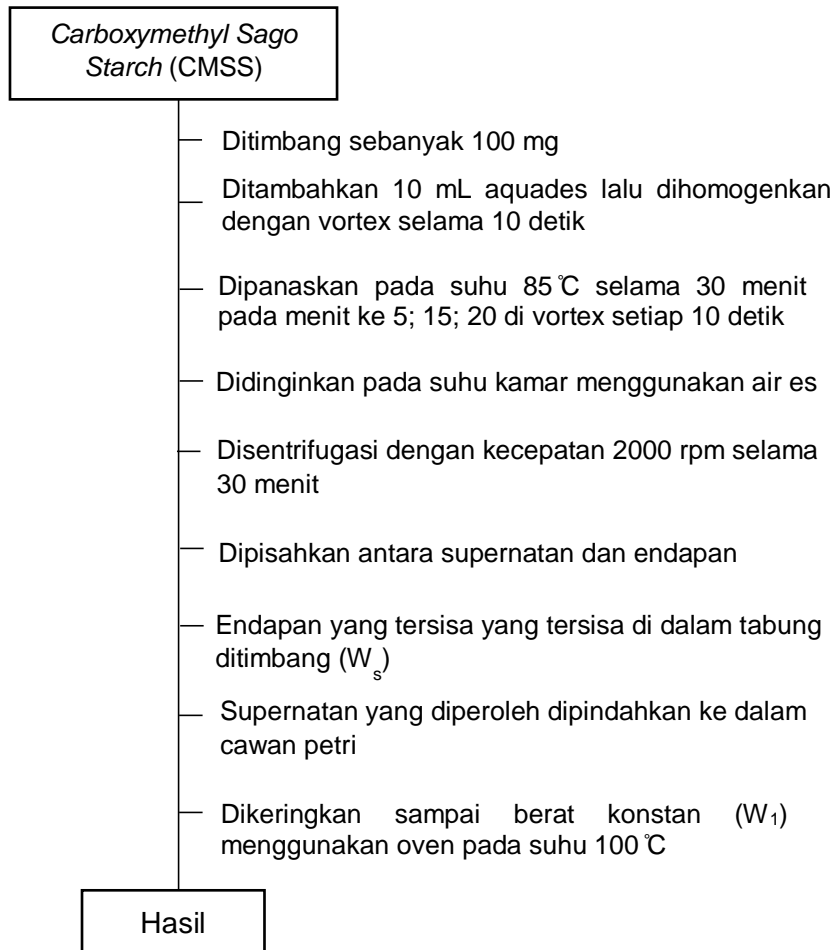


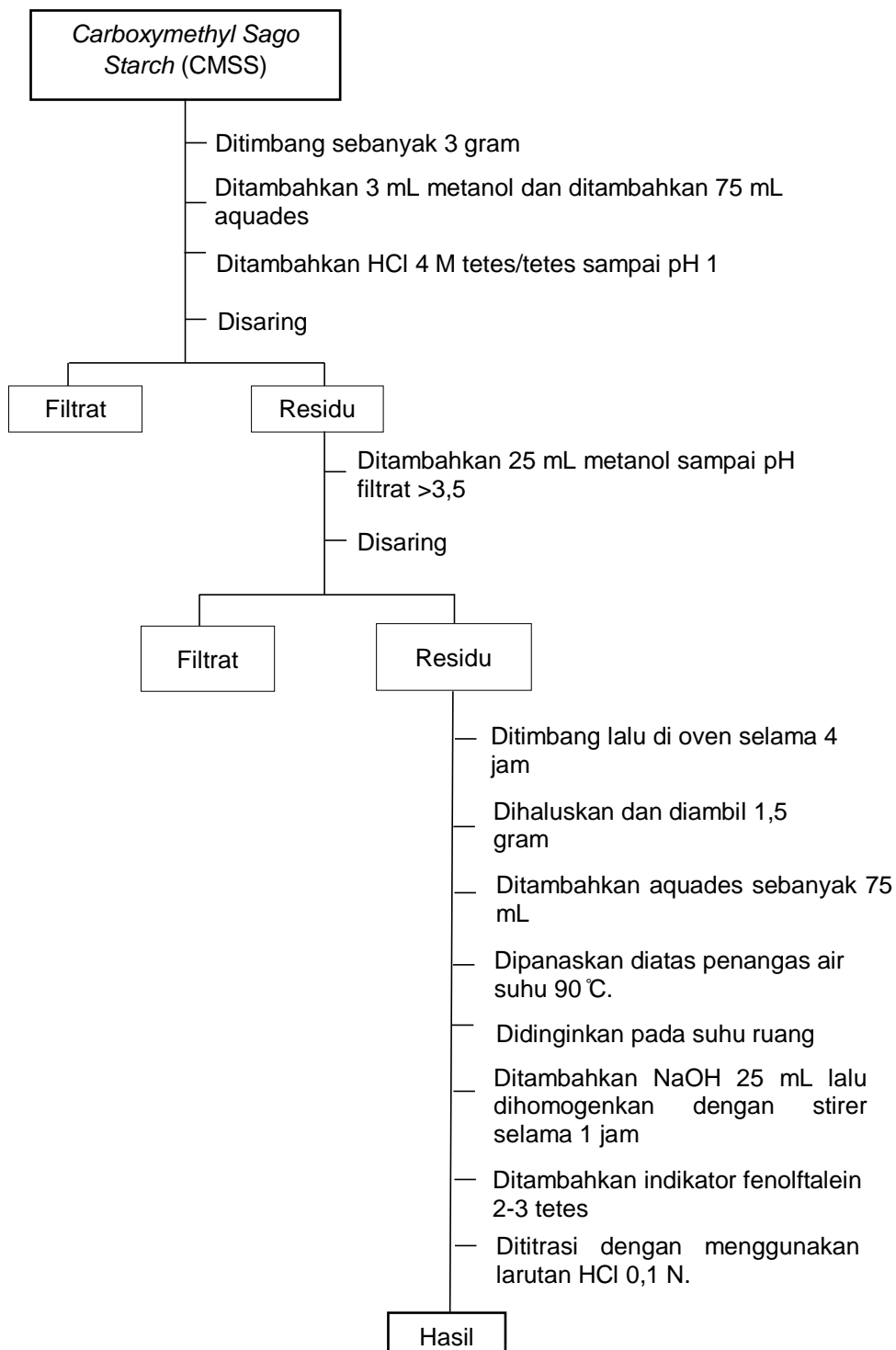
3. Modifikasi Pati Sagu dengan Metode Karboksimetilasi



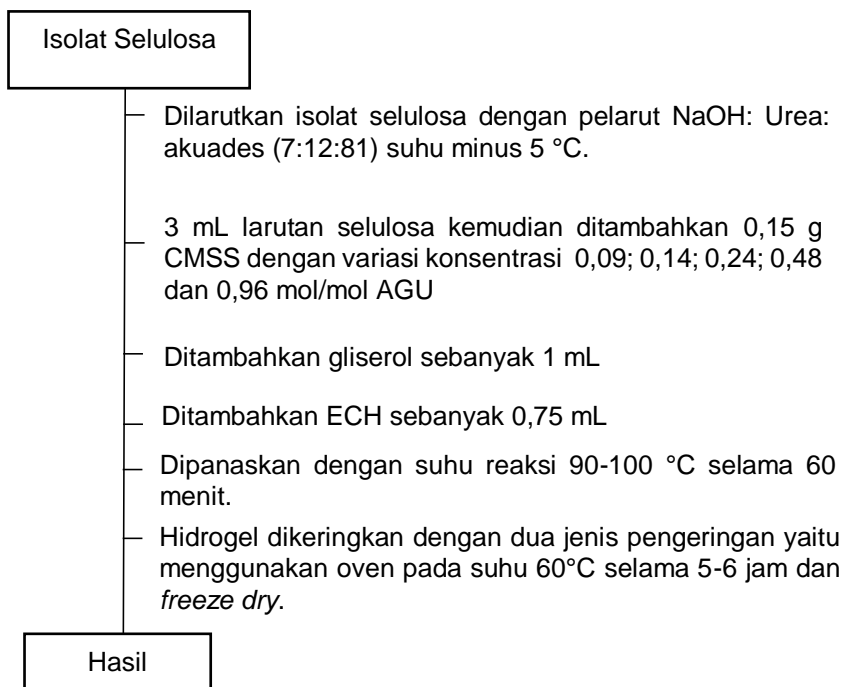
4. Uji Carboxymethyl Sago Starch (CMSS)

a. Swelling Power (SP) dan Water Soluble Index (WSI)



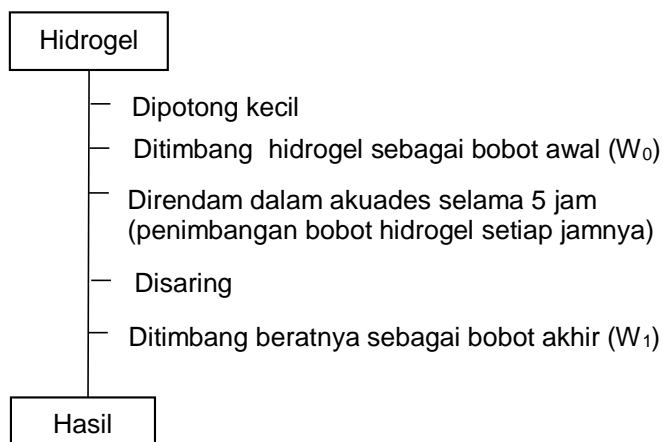
b. Uji Derajat Substitusi

5. Sintesis Hidrogel

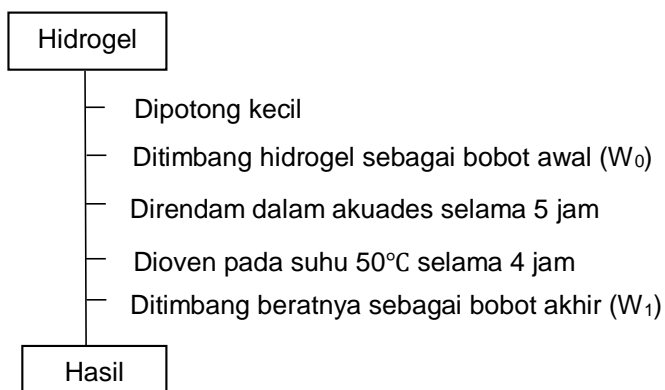


6. Uji Sediaan Hidrogel

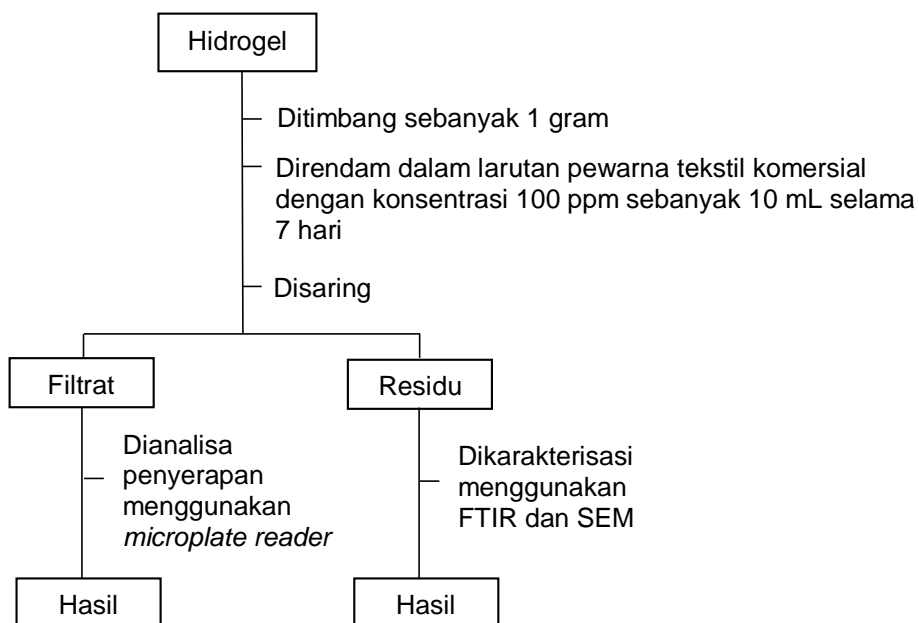
a. Uji Rasio *Swelling*



b. Uji Fraksi Gel



7. Analisis Adsorpsi Zat Pewarna Tekstil pada Hidrogel



LAMPIRAN 2. HASIL DAN DATA ANALISA

1. Data Isolasi Selulosa

Tgl	Massa Sampel (g)	Massa Selulosa (g)	Persentase Rendemen (%)
31-Agust	150,0081	11,8112	7,87
15-Sept	150,0241	18,1176	12,07
2- Okt	150,1250	23,1051	15,39
30-Okt	150,0067	25,5595	17,03
20-Nov	150,0153	28,3172	18,87

2. Data Water Soluble Index (WSI) dan Swelling Power (SP)

CMSS (mol/mol AGU)	Bobot Sampel	Bobot Kosong TS	Bobot Akhir TS	Cawan Kosong	Cawan Akhir	WSI	%S	Rata-Rata Swelling	SD
NS	0.1009	10.517	11.6885	13.0345	13.0422	0.0763	10.7235	7.3955	0.01068
	0.1013	10.510	10.9493	12.8626	12.8688	0.0612	4.0674		
0,09	0.1012	10.459	13.4251	13.1465	13.1713	0.2450	22.1230	19.5286	0.05844
	0.1007	10.501	13.0379	12.6903	12.7233	0.3277	16.9341		
0,14	0.1004	10.606	17.6672	13.0562	13.0614	0.0517	66.6814	65.3364	0.01264
	0.1019	10.561	17.5704	12.5907	12.5978	0.0696	63.9914		
0,24	0.1018	10.501	18.7013	12.4657	12.4811	0.1512	68.3647	68.3367	0.00234
	0.1022	10.501	18.7591	12.4657	12.4815	0.1545	68.3087		
0,48	0.1006	10.481	17.9699	12.701	12.706	0.0497	70.7414	71.0591	0.02537
	0.1013	10.501	17.8336	12.9134	12.9148	0.0138	71.3768		
0,96	0.1025	10.5014	18.8521	12.6913	12.7022	0.1963	72.8065	76.8979	0.06966
	0.1023	10.5014	18.8519	12.6551	12.6559	0.0078	80.9892		

3. Data Derajat Substitusi (DS)

CMSS (mol/mol AGU)	C	Mc	Vb	V	m	Wm	Wc	Xc	Ma	sd	Rata - rata derajat substitusi
0,09	0,1	58	14	12,5	1500	8,099	0,631114	59,67609	162	4,336014	0,589039655
	0,1	58	14	12,7	1500	8,099	0,546965	51,67552	162		
0,14	0,1	58	14	12,1	1500	7,567	0,79481	75,27866	162	3,897887	0,815725985
	0,1	58	14	12	1500	7,567	0,836642	79,27413	162		
0,24	0,1	58	14	11,8	1500	6,632	0,91109	86,39315	162	3,279233	0,952503356
	0,1	58	14	11,6	1500	6,632	0,993917	94,32592	162		
0,48	0,1	58	14	10	1500	5,573	0,995134	96,7731	162	2,575222	0,995134
	0,1	58	14	10	1500	5,328	0,995134	96,0035	162		
0,96	0,1	58	14	9,7	1500	4,712	0,997921	98,6873	162	2,143747	0,997921
	0,1	58	14	9,5	1500	4,71	0,997921	98,5539	162		

4. Fraksi Gel Hidrogel

a. Hidrogel pengeringan menggunakan oven

Hidrogel	Bobot Awal (W ₀) (gr)	Bobot Kering Akhir (W ₁) (gr)	Fraksi Gel (%)
AOH	2,000	1,3011	65,05
BOH	2,000	1,2694	64,82
COH	2,000	1,2217	61,08
DOH	2,000	1,2175	60,87
EOH	2,000	1,1457	57,27

b. Hidrogel pengeringan menggunakan *freeze dry*

Hidrogel	Bobot Awal (W ₀) (gr)	Bobot Kering Akhir (W ₁) (gr)	Fraksi Gel (%)
AFD	2,000	1,3114	65,57
BFD	2,000	1,2674	63,37
CFD	2,000	1,2346	61,73
DFD	2,000	1,2038	60,19
EFD	2,000	1,1731	58,65

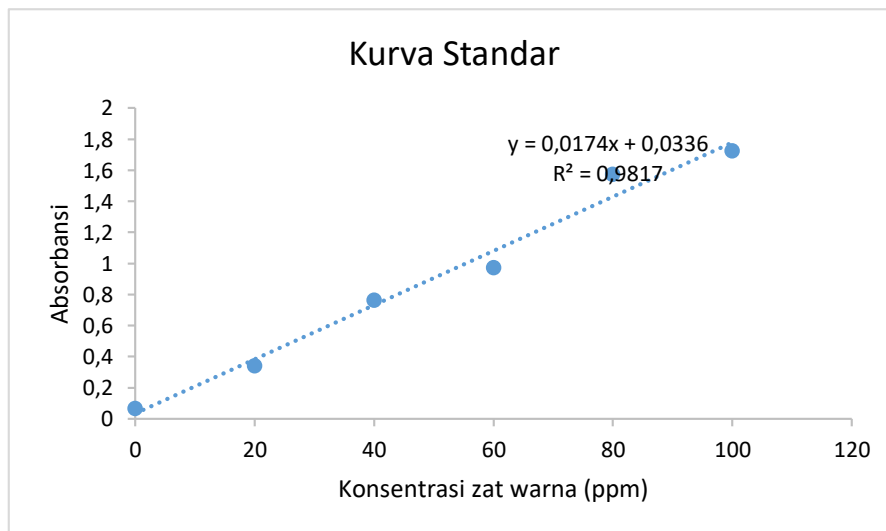
5. Data Adsorpsi Hidrogel Terhadap Pewarna Tekstil Komersial

a. Kurva Standar Pewarna Tekstil Komersial (Kuning)

Deret Standar

Konsentrasi (ppm)	Absorbansi			Rata-Rata Absorbansi (y)
	Simplo	Duplo	Triplo	
Blanko	0,064599998	0,064599998	0,064599998	0,064599998
	0,064599998	0,064599998	0,064599998	
20	0,339399993	0,339599997	0,33950001	0,33845
	0,3398	0,336199999	0,336199999	
40	0,742900014	0,728900015	0,732500017	0,763600012
	0,800800026	0,786899984	0,789600015	
60	0,968599975	0,970600009	0,971000016	0,970183333
	0,968400002	0,970499992	0,972000003	
80	1,546200037	1,547600031	1,551499963	1,573066672
	1,593000054	1,597599983	1,602499962	
100	1,721500039	1,726799965	1,725499988	1,724599997
	1,721500039	1,726799965	1,725499988	

Grafik

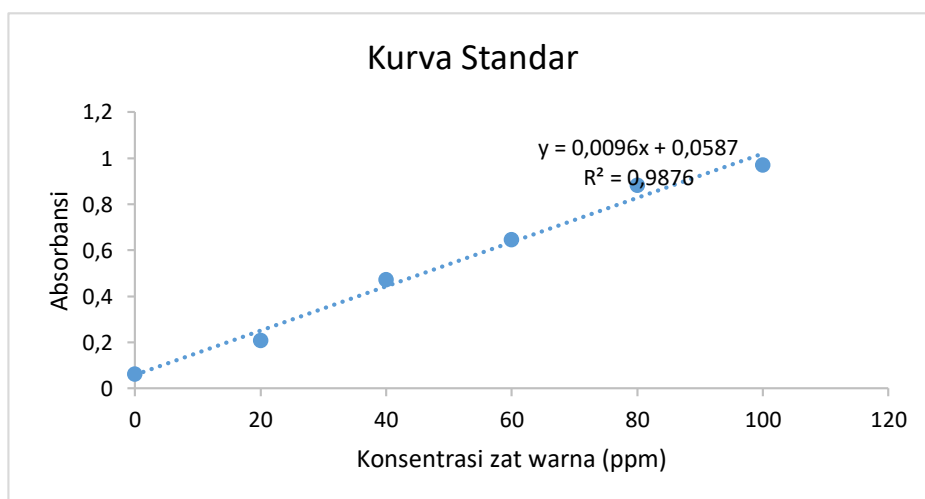


b. Kurva Standar Pewarna Tekstil Komersial (Hijau)

Deret Standar

Konsentrasi (ppm)	Absorbansi			Rata-Rata Absorbansi (y)
	Simplo	Duplo	Triplo	
Blanko	0,061799999	0,061799999	0,061799999	0,061799999
	0,061799999	0,061799999	0,061799999	
20	0,212300003	0,206300005	0,207900003	0,207733336
	0,208700001	0,204799995	0,206400007	
40	0,475100011	0,47420001	0,47330001	0,471816669
	0,469599992	0,469099998	0,469599992	
60	0,649399996	0,648699999	0,646300018	0,644166668
	0,639500022	0,640999973	0,640100002	
80	0,87529999	0,87440002	0,875500023	0,880383343
	0,8847	0,886300027	0,886099994	
100	0,939100027	0,93809998	0,939199984	0,969166666
	0,998300016	0,999499977	1,000800014	

Grafik

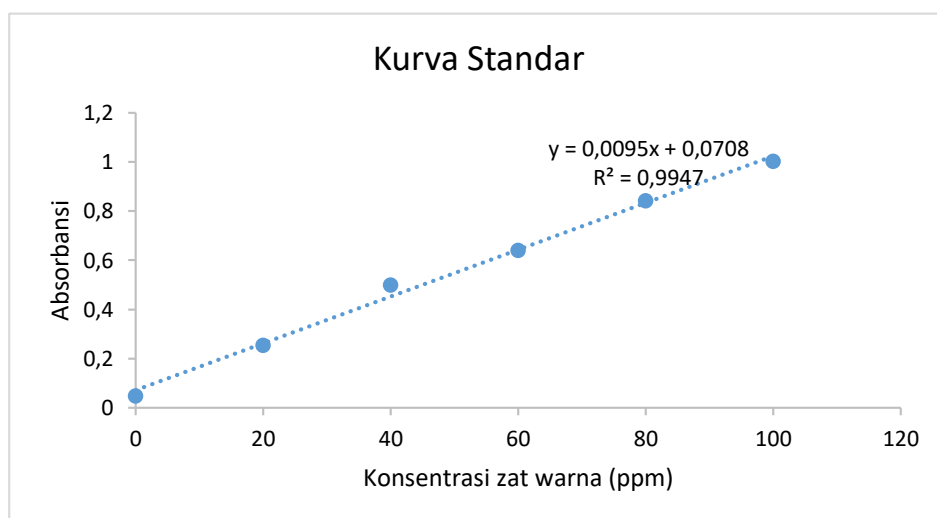


c. Kurva Standar Pewarna Tekstil Komersial (Hitam)

Deret Standar

Konsentrasi (ppm)	Absorbansi			Rata-Rata Absorbansi (y)
	Simple	Duplo	Triplo	
Blanko	0,048300002	0,048300002	0,048300002	0,048300002
	0,048300002	0,048300002	0,048300002	
20	0,252099991	0,25150001	0,251100004	0,253583332
	0,256099999	0,255499989	0,255199999	
40	0,511300027	0,512700021	0,511500001	0,499933342
	0,487899989	0,488200009	0,488000005	
60	0,635200024	0,6347	0,634899974	0,639183342
	0,644200027	0,643100023	0,643000007	
80	0,755400002	0,753799975	0,752499998	0,841283321
	0,92839998	0,929199994	0,92839998	
100	0,939000011	0,938899994	0,940100014	1,002300014
	1,065700054	1,065500021	1,064599991	

Grafik

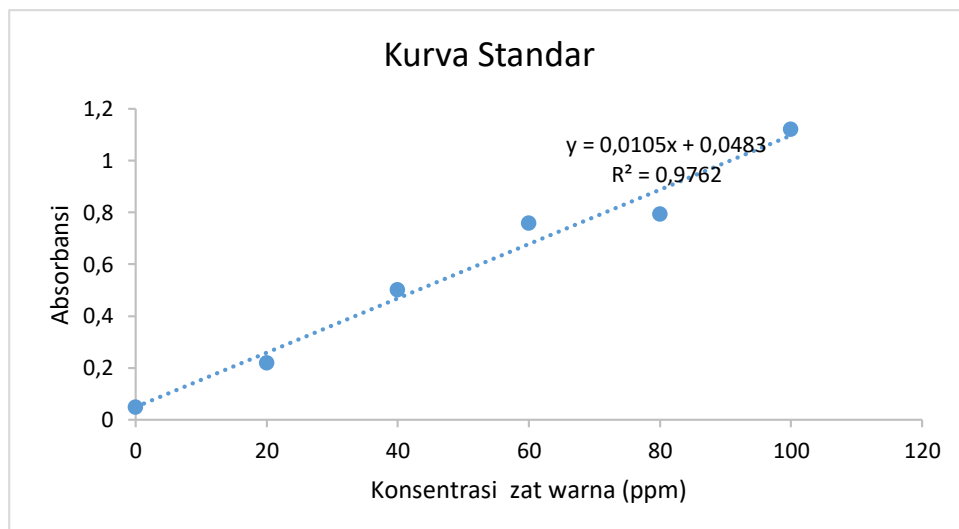


d. Kurva Standar Pewarna Tekstil Komersial (Ungu)

Deret Standar

Konsentrasi (ppm)	Absorbansi			Rata-Rata Absorbansi (y)
	Simplo	Duplo	Triplo	
Blanko	0,047200002	0,047200002	0,047200002	0,047200002
	0,047200002	0,047200002	0,047200002	
20	0,209000006	0,208800003	0,208900005	0,218283335
	0,228	0,226099998	0,2289	
40	0,497099996	0,497500002	0,497000009	0,500249997
	0,502799988	0,503899992	0,503199995	
60	0,738699973	0,739300013	0,738099992	0,758383334
	0,778500021	0,777199984	0,778500021	
80	0,898999989	0,897800028	0,897800028	0,792033345
	0,685000002	0,686200023	0,686399996	
100	1,083199978	1,081900001	1,081699967	1,119133333
	1,155099988	1,156200051	1,156700015	

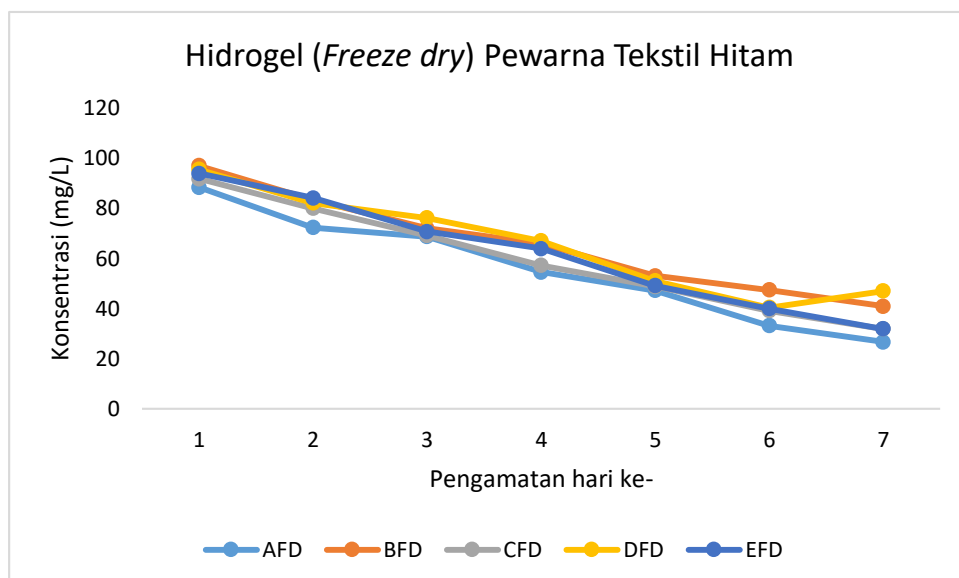
Grafik



e. Adsorpsi Hidrogel (*Freeze Dry*) Pewarna Tekstil (Hitam)

Sampel	Absorbansi		Rata2	Slope	Intersept	Concentration	Efisiensi Penyerapan (%)
	Simple	Duplo					
AFD	0,1796 0,1837	0,1795 0,1855	0,1820	0,0095	0,0708	26,6184	76,4350
BFD	0,3512 0,2841	0,3503 0,2839	0,3173	0,0095	0,0708	40,8605	63,8267
CFD	0,2266 0,2352	0,2274 0,2352	0,2311	0,0095	0,0708	31,7789	71,8665
DFD	0,3629 0,3895	0,3614 0,388	0,3754	0,0095	0,0708	46,9736	53,4148
EFD	0,2203 0,2436	0,2196 0,2445	0,232	0,0095	0,0708	31,8736	71,7826

Grafik



Analisis Data (Pewarna Tekstil Komersial Hitam) (Hidrogel *Freeze dry*)

Penentuan konsentrasi sisa pewarna tekstil komersial dengan menggunakan persamaan linier

$$y = 0,0095x + 0,0708$$

$$y = bx+a$$

(a) Penentuan Konsentrasi Awal

$$x = \frac{y + 0,0708}{0,0095}$$

$$x = \frac{1,00230 + 0,0708}{0,0095}$$

$$x = 112,9578 \text{ ppm}$$

a) **Hidrogel 0,09 mol/mol AGU (AFD)**

$$x = \frac{y + 0,0708}{0,0095}$$

$$x = \frac{0,182075 + 0,0708}{0,0095}$$

$$x = 26,6184 \text{ ppm}$$

b) **Hidrogel 0,14 mol/mol AGU (BFD)**

$$x = \frac{y + 0,0708}{0,0095}$$

$$x = \frac{0,317375 + 0,0708}{0,0095}$$

$$x = 40,8605 \text{ ppm}$$

c) **Hidrogel 0,24 mol/mol AGU (CFD)**

$$x = \frac{y + 0,0708}{0,0095}$$

$$x = \frac{0,2311 + 0,0708}{0,0095}$$

$$x = 31,7789 \text{ ppm}$$

d) **Hidrogel 0,48 mol/mol AGU (DFD)**

$$\begin{aligned}
 x &= \frac{y + 0,0708}{0,0095} \\
 x &= \frac{0,37545 + 0,0708}{0,0095} \\
 x &= 46,97368 \text{ ppm}
 \end{aligned}$$

e) **Hidrogel 0,96 mol/mol AGU (EFD)**

$$\begin{aligned}
 x &= \frac{y + 0,0708}{0,0095} \\
 x &= \frac{0,232 + 0,0708}{0,0095} \\
 x &= 31,87368 \text{ ppm}
 \end{aligned}$$

Efisiensi Penyerapan Pewarna Tekstil Komersial Hitam (Hidrogel *Freeze dry*)

$$\text{Efisiensi Penyerapan} = \frac{(C_0 - C_1)}{C_0} \times 100\%$$

a. **Hidrogel 0,09 mol/mol AGU (AOH)**

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(112,95789 \text{ ppm} - 26,61842 \text{ ppm})}{112,95789 \text{ ppm}} \times 100\% \\
 &= \frac{86,33947}{112,95789} \times 100\% \\
 &= 76,4350\%
 \end{aligned}$$

b. Hidrogel 0,14 mol/mol AGU (BFD)

$$\begin{aligned}
 EP &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(112,95789 \text{ ppm} - 40,86053 \text{ ppm})}{112,95789 \text{ ppm}} \times 100\% \\
 &= \frac{72,09736}{112,95789} \times 100\% \\
 &= 63,8267\%
 \end{aligned}$$

c. Hidrogel 0,24 mol/mol AGU (CFD)

$$\begin{aligned}
 EP &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(112,95789 \text{ ppm} - 31,77895 \text{ ppm})}{112,95789 \text{ ppm}} \times 100\% \\
 &= \frac{81,17894}{112,95789} \times 100\% \\
 &= 71,8665\%
 \end{aligned}$$

d. Hidrogel 0,48 mol/mol AGU (DFD)

$$\begin{aligned}
 EP &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(112,95789 \text{ ppm} - 46,97368 \text{ ppm})}{112,95789 \text{ ppm}} \times 100\% \\
 &= \frac{65,98421}{112,95789} \times 100\% \\
 &= 58,41487\%
 \end{aligned}$$

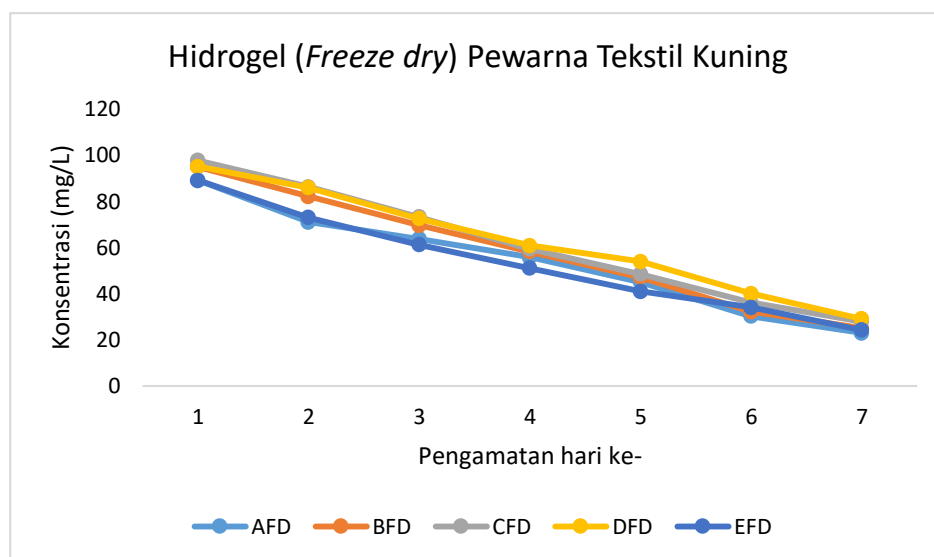
e. Hidrogel 0,96 mol/mol AGU (EFD)

$$\begin{aligned}
 EP &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(112,95789 \text{ ppm} - 31,87368 \text{ ppm})}{112,95789 \text{ ppm}} \times 100\% \\
 &= \frac{81,08421}{112,95789} \times 100\% \\
 &= 71,7826\%
 \end{aligned}$$

f. Adsorpsi Hidrogel (*Freeze Dry*) Pewarna Tekstil (Kuning)

Sampel	Absorbansi		Rata2	Slope	Intersept	Concentration	Efisiensi Penyerapan (%)
	Simplo	Duplo					
AFD	0,3922	0,319	0,361425	0,0174	0,0336	22,70258	77,5314
	0,3674	0,3671					
BFD	0,3652	0,3652	0,3975	0,0174	0,0336	24,77586	75,4792
	0,4299	0,4297					
CFD	0,4517	0,4519	0,447325	0,0174	0,0336	27,63936	72,6451
	0,4425	0,4432					
DFD	0,5253	0,5257	0,46845	0,0174	0,0336	28,85344	71,44361
	0,4109	0,4119					
EFD	0,3622	0,3614	0,382925	0,0174	0,0336	23,93281	76,3082
	0,4051	0,403					

Grafik



Analisis Data (Pewarna Tekstil Komersial Kuning) (Hidrogel *Freeze dry*)

Penentuan konsentrasi sisa pewarna tekstil komersial dengan menggunakan persamaan linier

$$y = 0,0174x + 0,0336$$

$$y = bx+a$$

Penentuan Konsentrasi Awal

$$x = \frac{y + 0,0336}{0,0174}$$

$$x = \frac{1,7245 + 0,0336}{0,0174}$$

$$x = 101,04023 \text{ ppm}$$

a. Hidrogel 0,09 mol/mol AGU (AFD)

$$x = \frac{y + 0,0336}{0,0174}$$

$$x = \frac{0,361425 + 0,0336}{0,0174}$$

$$x = 22,70258 \text{ ppm}$$

b. Hidrogel 0,14 mol/mol AGU (BFD)

$$x = \frac{y + 0,0336}{0,0174}$$

$$x = \frac{0,3975 + 0,0336}{0,0174}$$

$$x = 24,77586 \text{ ppm}$$

c. Hidrogel 0,24 mol/mol AGU (CFD)

$$x = \frac{y + 0,0336}{0,0174}$$

$$x = \frac{0,447325 + 0,0336}{0,0174}$$

$$x = 27,63936 \text{ ppm}$$

d. Hidrogel 0,48 mol/mol AGU (DFD)

$$x = \frac{y + 0,0336}{0,0174}$$

$$x = \frac{0,46845 + 0,0336}{0,0174}$$

$$x = 28,85344 \text{ ppm}$$

e. Hidrogel 0,96 mol/mol AGU (EFD)

$$x = \frac{y + 0,0336}{0,0174}$$

$$x = \frac{0,382925 + 0,0336}{0,0174}$$

$$x = 23,93821 \text{ ppm}$$

Efisiensi Penyerapan Pewarna Tekstil Komersial Kuning (Hidrogel *Freeze dry*)

$$\text{Efisiensi Penyerapan} = \frac{(C_0 - C_1)}{C_0} \times 100\%$$

a. Hidrogel 0,09 mol/mol AGU (AFD)

$$\text{EP} = \frac{(C_0 - C_1)}{C_0} \times 100\%$$

$$= \frac{(101,04023 \text{ ppm} - 22,70258 \text{ ppm})}{101,04023 \text{ ppm}} \times 100\%$$

$$= \frac{78,33765}{101,04023} \times 100\%$$

$$= 77,53114\%$$

b. Hidrogel 0,14 mol/mol AGU (BFD)

$$\begin{aligned}
 EP &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(101,04023 \text{ ppm} - 24,77586 \text{ ppm})}{101,04023 \text{ ppm}} \times 100\% \\
 &= \frac{76,26437}{101,04023} \times 100\% \\
 &= 75,47921\%
 \end{aligned}$$

c. Hidrogel 0,24 mol/mol AGU (CFD)

$$\begin{aligned}
 EP &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(101,04023 \text{ ppm} - 27,63936 \text{ ppm})}{101,04023 \text{ ppm}} \times 100\% \\
 &= \frac{73,40087}{101,04023} \times 100\% \\
 &= 72,64519\%
 \end{aligned}$$

d. Hidrogel 0,48 mol/mol AGU (DFD)

$$\begin{aligned}
 EP &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(101,04023 \text{ ppm} - 28,85344 \text{ ppm})}{101,04023 \text{ ppm}} \times 100\% \\
 &= \frac{72,18679}{101,04023} \times 100\% \\
 &= 71,44361\%
 \end{aligned}$$

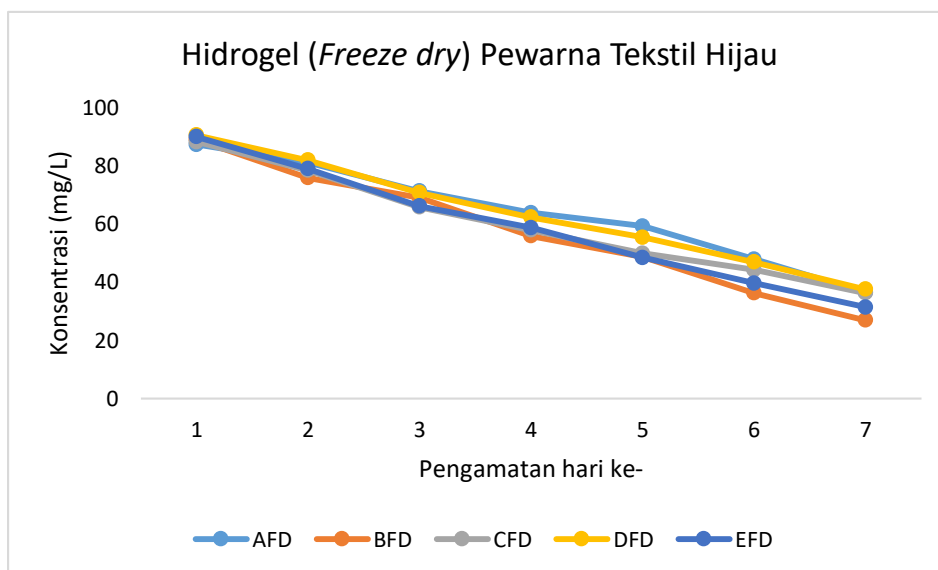
e. Hidrogel 0,96 mol/mol AGU (EFD)

$$\begin{aligned}
 EP &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(101,04023 \text{ ppm} - 23,93821 \text{ ppm})}{101,04023 \text{ ppm}} \times 100\% \\
 &= \frac{77,10202}{101,04023} \times 100\% \\
 &= 76,308238\%
 \end{aligned}$$

g. Adsorpsi Hidrogel (*Freeze Dry*) Pewarna Tekstil (Hijau)

Sampel	Absorbansi		Rata2	Slope	Intersept	Concentration	Efisiensi Penyerapan (%)
	Simple	Duplo					
AFD	0,3011 0,2805	0,3011 0,2805	0,2908	0,0096	0,0587	36,4062	65,9953
BFD	0,2443 0,154	0,2443 0,154	0,1991	0,0096	0,0587	26,8593	74,9125
CFD	0,2774 0,2997	0,2774 0,2997	0,2885	0,0096	0,0587	36,1718	66,2143
DFD	0,2887 0,3142	0,2887 0,3142	0,3014	0,0096	0,0587	37,5156	64,9591
EFD	0,2175 0,267	0,2175 0,267	0,2422	0,0096	0,0587	31,3489	70,7190

Grafik



Analisis Data (Pewarna Tekstil Komersial Hijau) (Hidrogel *Freeze dry*)

Penentuan konsentrasi sisa pewarna tekstil komersial dengan menggunakan persamaan linier

$$y = 0,0096x + 0,0587$$

$$y = bx+a$$

Penentuan Konsentrasi Awal

$$x = \frac{y + 0,0587}{0,0096}$$

$$x = \frac{0,9691 + 0,0587}{0,0096}$$

$$x = 107,0625 \text{ ppm}$$

a. Hidrogel 0,09 mol/mol AGU (AFD)

$$x = \frac{y + 0,0587}{0,0096}$$

$$x = \frac{0,2908 + 0,0587}{0,0096}$$

$$x = 36,4062 \text{ ppm}$$

b. Hidrogel 0,14 mol/mol AGU (BFD)

$$x = \frac{y + 0,0587}{0,0096}$$

$$x = \frac{0,19915 + 0,0587}{0,0096}$$

$$x = 26,8593 \text{ ppm}$$

c. Hidrogel 0,24 mol/mol AGU (CFD)

$$x = \frac{y + 0,0587}{0,0096}$$

$$x = \frac{0,28855 + 0,0587}{0,0096}$$

$$x = 36,1718 \text{ ppm}$$

d. Hidrogel 0,48 mol/mol AGU (DFD)

$$x = \frac{y + 0,0587}{0,0096}$$

$$x = \frac{0,30145 + 0,0587}{0,0096}$$

$$x = 37,5156 \text{ ppm}$$

e. Hidrogel 0,96 mol/mol AGU (EFD)

$$x = \frac{y + 0,0587}{0,0096}$$

$$x = \frac{0,24225 + 0,0587}{0,0096}$$

$$x = 31,3489 \text{ ppm}$$

Efisiensi Penyerapan Pewarna Tekstil Komersial Hijau (Hidrogel *Freeze dry*)

$$\text{Efisiensi Penyerapan} = \frac{(C_0 - C_1)}{C_0} \times 100\%$$

a. Hidrogel 0,09 mol/mol AGU (AFD)

$$\text{EP} = \frac{(C_0 - C_1)}{C_0} \times 100\%$$

$$= \frac{(107,0625 \text{ ppm} - 36,4062 \text{ ppm})}{107,0625 \text{ ppm}} \times 100\%$$

$$= \frac{70,6563}{107,0625} \times 100\%$$

$$= 65,9953\%$$

b. Hidrogel 0,14 mol/mol AGU (BFD)

$$\begin{aligned}
 EP &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(107,0625 \text{ ppm} - 26,8593 \text{ ppm})}{107,0625 \text{ ppm}} \times 100\% \\
 &= \frac{80,2032}{107,0625} \times 100\% \\
 &= 74,9125\%
 \end{aligned}$$

c. Hidrogel 0,24 mol/mol AGU (CFD)

$$\begin{aligned}
 EP &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(107,0625 \text{ ppm} - 36,1718 \text{ ppm})}{107,0625 \text{ ppm}} \times 100\% \\
 &= \frac{70,8907}{107,0625} \times 100\% \\
 &= 66,2143\%
 \end{aligned}$$

d. Hidrogel 0,48 mol/mol AGU (DFD)

$$\begin{aligned}
 EP &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(107,0625 \text{ ppm} - 37,5156 \text{ ppm})}{107,0625 \text{ ppm}} \times 100\% \\
 &= \frac{69,5469}{107,0625} \times 100\% \\
 &= 64,9591\%
 \end{aligned}$$

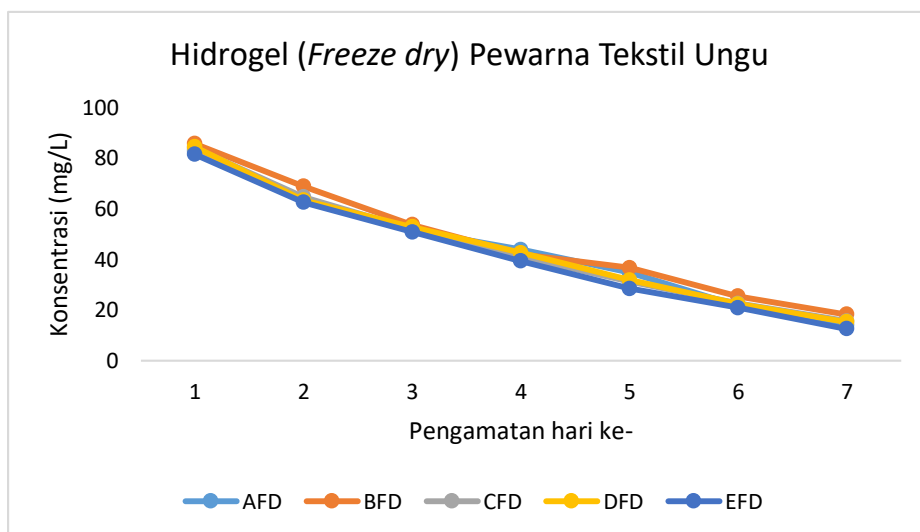
e. Hidrogel 0,96 mol/mol AGU (EFD)

$$\begin{aligned}
 EP &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(107,0625 \text{ ppm} - 31,3489 \text{ ppm})}{107,0625 \text{ ppm}} \times 100\% \\
 &= \frac{75,7136}{107,0625} \times 100\% \\
 &= 70,7190\%
 \end{aligned}$$

h. Adsorpsi Hidrogel (*Freeze Dry*) Pewarna Tekstil (Ungu)

Sampel	Absorbansi		Rata2	Slope	Intersept	Concentration	Efisiensi Penyerapan (%)
	Simple	Duplo					
AFD	0,0985	0,0984	0,0980	0,0105	0,0483	13,9333	87,4679
	0,0983	0,097					
BFD	0,1504	0,1504	0,1422	0,0105	0,0483	18,1447	83,6800
	0,1335	0,1346					
CFD	0,1068	0,107	0,1150	0,0105	0,0483	15,5523	86,0117
	0,1229	0,1234					
DFD	0,0999	0,0997	0,1113	0,0105	0,0483	15,2071	86,3222
	0,1231	0,1228					
EFD	0,0827	0,0828	0,0828	0,0105	0,0483	12,4857	88,7699
	0,083	0,083					

Grafik



Analisis Data (Pewarna Tekstil Komersial Ungu) (Hidrogel *Freeze dry*)

Penentuan konsentrasi sisa pewarna tekstil komersial dengan menggunakan persamaan linier

$$y = 0,0105x + 0,0483$$

$$y = bx+a$$

Penentuan Konsentrasi Awal

$$x = \frac{y + 0,0483}{0,0105}$$

$$x = \frac{1,1191 + 0,0483}{0,0105}$$

$$x = 111,1809 \text{ ppm}$$

a. Hidrogel 0,09 mol/mol AGU (AFD)

$$x = \frac{y + 0,0483}{0,0105}$$

$$x = \frac{0,0980 + 0,0483}{0,0105}$$

$$x = 13,9333 \text{ ppm}$$

b. Hidrogel 0,14 mol/mol AGU (BFD)

$$x = \frac{y + 0,0483}{0,0105}$$

$$x = \frac{0,14222 + 0,0483}{0,0105}$$

$$x = 18,1447 \text{ ppm}$$

c. Hidrogel 0,24 mol/mol AGU (CFD)

$$x = \frac{y + 0,0483}{0,0105}$$

$$x = \frac{0,11502 + 0,0483}{0,0105}$$

$$x = 15,5523 \text{ ppm}$$

d. Hidrogel 0,48 mol/mol AGU (DFD)

$$x = \frac{y + 0,0483}{0,0105}$$

$$x = \frac{0,1113 + 0,0483}{0,0105}$$

$$x = 15,20 \text{ ppm}$$

e. Hidrogel 0,96 mol/mol AGU (EFD)

$$x = \frac{y + 0,0483}{0,0105}$$

$$x = \frac{0,0828 + 0,0483}{0,0105}$$

$$x = 12,4857 \text{ ppm}$$

Efisiensi Penyerapan Pewarna Tekstil Komersial Ungu (Hidrogel *Freeze dry*)

$$\text{Efisiensi Penyerapan} = \frac{(C_0 - C_1)}{C_0} \times 100\%$$

a. Hidrogel 0,09 mol/mol AGU (AFD)

$$\text{EP} = \frac{(C_0 - C_1)}{C_0} \times 100\%$$

$$= \frac{(111,1809 \text{ ppm} - 13,9333 \text{ ppm})}{111,1809 \text{ ppm}} \times 100\%$$

$$= \frac{97,2476}{111,1809} \times 100\%$$

$$= 87,4679\%$$

b. Hidrogel 0,14 mol/mol AGU (BFD)

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(111,1809 \text{ ppm} - 18,1447 \text{ ppm})}{111,1809 \text{ ppm}} \times 100\% \\
 &= \frac{93,0362}{111,1809} \times 100\% \\
 &= 83,6800\%
 \end{aligned}$$

c. Hidrogel 0,24 mol/mol AGU (CFD)

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(111,1809 \text{ ppm} - 15,5523 \text{ ppm})}{111,1809 \text{ ppm}} \times 100\% \\
 &= \frac{95,6286}{111,1809} \times 100\% \\
 &= 86,0117\%
 \end{aligned}$$

d. Hidrogel 0,48 mol/mol AGU (DFD)

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(111,1809 \text{ ppm} - 15,2071 \text{ ppm})}{111,1809 \text{ ppm}} \times 100\% \\
 &= \frac{95,9738}{111,1809} \times 100\% \\
 &= 86,3222\%
 \end{aligned}$$

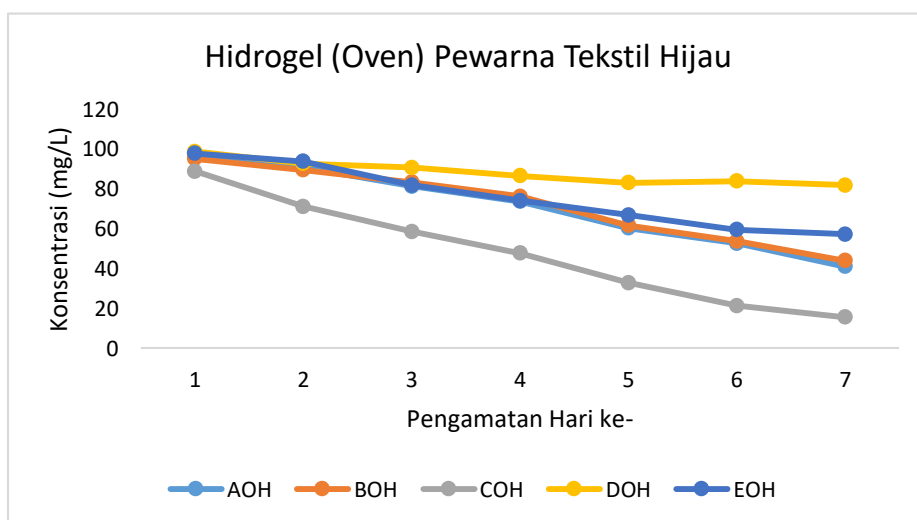
e. Hidrogel 0,96 mol/mol AGU (EFD)

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(111,1809 \text{ ppm} - 12,4857 \text{ ppm})}{111,1809 \text{ ppm}} \times 100\% \\
 &= \frac{98,6952}{111,1809} \times 100\% \\
 &= 88,7699\%
 \end{aligned}$$

i. Adsorpsi Hidrogel (Oven) Pewarna Tekstil (Hijau)

Sampel	Absorbansi		Rata2	Slope	Intersept	Concentration	Efisiensi Penyerapan (%)
	Simple	Duplo					
AOH	0,3666 0,3032	0,3668 0,3040	0,3350	0,0096	0,0587	40,0104	62,6289
BOH	0,3873 0,4056	0,3228 0,4048	0,3639	0,0096	0,0587	44,0208	58,8830
COH	0,3227 0,1229	0,107 0,1234	0,1150	0,0105	0,0483	18,0937	83,0998
DOH	0,7325 0,7222	0,7321 0,7224	0,7273	0,0096	0,0587	81,875	23,5259
EOH	0,4850 0,4955	0,4851 0,4947	0,4900	0,0096	0,0587	57,1635	46,6073

Grafik



Analisis Data (Pewarna Tekstil Komersial Hijau) (Hidrogel Oven)

Penentuan konsentrasi sisa pewarna tekstil komersial dengan menggunakan persamaan linier

$$y = 0,0096x + 0,0587$$

$$y = bx+a$$

Penentuan Konsentrasi Awal

$$x = \frac{y + 0,0587}{0,0096}$$

$$x = \frac{0,9691 + 0,0587}{0,0096}$$

$$x = 107,0625 \text{ ppm}$$

a. Hidrogel 0,09 mol/mol AGU (AOH)

$$x = \frac{y + 0,0587}{0,0096}$$

$$x = \frac{0,3350 + 0,0587}{0,0096}$$

$$x = 40,0104 \text{ ppm}$$

b. Hidrogel 0,14 mol/mol AGU (BOH)

$$x = \frac{y + 0,0587}{0,0096}$$

$$x = \frac{0,3639 + 0,0587}{0,0096}$$

$$x = 44,0208 \text{ ppm}$$

c. Hidrogel 0,24 mol/mol AGU (COH)

$$x = \frac{y + 0,0587}{0,0096}$$

$$x = \frac{0,1150 + 0,0587}{0,0096}$$

$$x = 18,0937 \text{ ppm}$$

d. Hidrogel 0,48 mol/mol AGU (DOH)

$$x = \frac{y + 0,0587}{0,0096}$$

$$x = \frac{0,7273 + 0,0587}{0,0096}$$

$$x = 81,875 \text{ ppm}$$

e. Hidrogel 0,96 mol/mol AGU (EOH)

$$x = \frac{y + 0,0587}{0,0096}$$

$$x = \frac{0,49007 + 0,0587}{0,0096}$$

$$x = 57,1635 \text{ ppm}$$

Efisiensi Penyerapan Pewarna Tekstil Komersial Hijau (Hidrogel Oven)

$$\text{Efisiensi Penyerapan} = \frac{(C_0 - C_1)}{C_0} \times 100\%$$

a. Hidrogel 0,09 mol/mol AGU (AOH)

$$\text{EP} = \frac{(C_0 - C_1)}{C_0} \times 100\%$$

$$= \frac{(107,0625 \text{ ppm} - 40,0104 \text{ ppm})}{107,0625 \text{ ppm}} \times 100\%$$

$$= \frac{67,0521}{107,0625} \times 100\%$$

$$= 62,6289\%$$

b. Hidrogel 0,14 mol/mol AGU (BOH)

$$\begin{aligned}
 EP &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(107,0625 \text{ ppm} - 44,02083 \text{ ppm})}{107,0625 \text{ ppm}} \times 100\% \\
 &= \frac{63,04167}{107,0625} \times 100\% \\
 &= 58,8830\%
 \end{aligned}$$

c. Hidrogel 0,24 mol/mol AGU (COH)

$$\begin{aligned}
 EP &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(107,0625 \text{ ppm} - 18,09375 \text{ ppm})}{107,0625 \text{ ppm}} \times 100\% \\
 &= \frac{88,96875}{107,0625} \times 100\% \\
 &= 83,0998\%
 \end{aligned}$$

d. Hidrogel 0,48 mol/mol AGU (DOH)

$$\begin{aligned}
 EP &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(107,0625 \text{ ppm} - 81,875 \text{ ppm})}{107,0625 \text{ ppm}} \times 100\% \\
 &= \frac{25,1875}{107,0625} \times 100\% \\
 &= 23,5259\%
 \end{aligned}$$

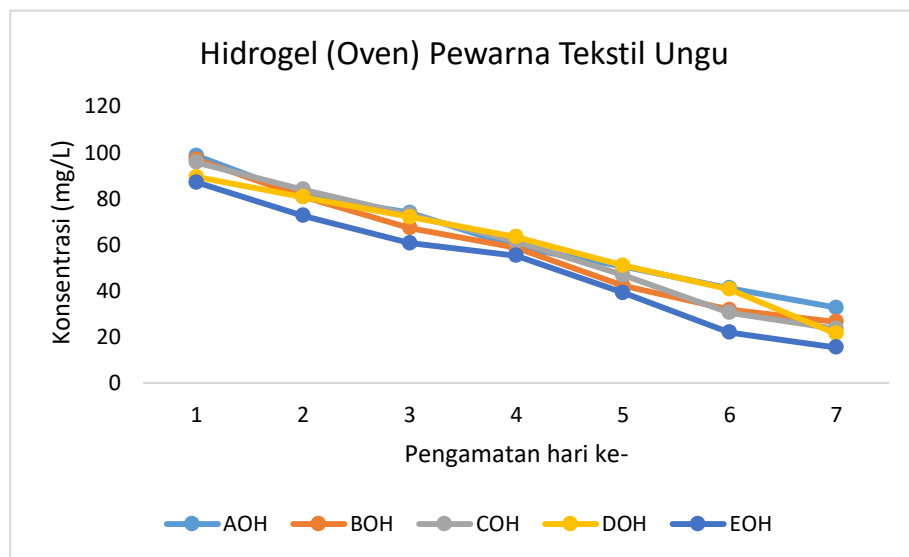
e. Hidrogel 0,96 mol/mol AGU (EOH)

$$\begin{aligned}
 EP &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(107,0625 \text{ ppm} - 57,1635 \text{ ppm})}{107,0625 \text{ ppm}} \times 100\% \\
 &= \frac{49,899}{107,0625} \times 100\% \\
 &= 46,6073\%
 \end{aligned}$$

j. Adsorpsi Hidrogel (Oven) Pewarna Tekstil (Ungu)

Sampel	Absorbansi		Rata2	Slope	Intersept	Concentration	Efisiensi Penyerapan (%)
	Simplo	Duplo					
AOH	0,2884	0,2882	0,2953	0,0105	0,0483	32,7238	70,5670
	0,3022	0,3020					
BOH	0,2426	0,2425	0,2308	0,0105	0,0483	26,5809	76,0922
	0,2191	0,2190					
COH	0,2246	0,2246	0,1994	0,0105	0,0483	23,5904	78,7819
	0,1733	0,1733					
DOH	0,1898	0,1899	0,1774	0,0105	0,0483	21,4952	80,6664
	0,1649	0,1650					
EOH	0,1051	0,1051	0,114	0,0105	0,0483	15,4571	86,0973
	0,1228	0,1226					

Grafik



Analisis Data (Pewarna Tekstil Komersial Ungu) (Hidrogel Oven)

Penentuan konsentrasi sisa pewarna tekstil komersial dengan menggunakan persamaan linier

$$y = 0,0105x + 0,0483$$

$$y = bx+a$$

Penentuan Konsentrasi Awal

$$x = \frac{y + 0,0483}{0,0105}$$

$$x = \frac{1,1191 + 0,0483}{0,0105}$$

$$x = 111,1809 \text{ ppm}$$

a. Hidrogel 0,09 mol/mol AGU (AOH)

$$x = \frac{y + 0,0483}{0,0105}$$

$$x = \frac{0,2953 + 0,0483}{0,0105}$$

$$x = 32,7238 \text{ ppm}$$

b. Hidrogel 0,14 mol/mol AGU (BOH)

$$x = \frac{y + 0,0483}{0,0105}$$

$$x = \frac{0,2308 + 0,0483}{0,0105}$$

$$x = 26,5809 \text{ ppm}$$

c. Hidrogel 0,24 mol/mol AGU (COH)

$$x = \frac{y + 0,0483}{0,0105}$$

$$x = \frac{0,1994 + 0,0483}{0,0105}$$

$$x = 23,5904 \text{ ppm}$$

d. Hidrogel 0,48 mol/mol AGU (DOH)

$$\begin{aligned}
 x &= \frac{y + 0,0483}{0,0105} \\
 x &= \frac{0,1774 + 0,0483}{0,0105} \\
 x &= 21,4952 \text{ ppm}
 \end{aligned}$$

e. Hidrogel 0,96 mol/mol AGU (EOH)

$$\begin{aligned}
 x &= \frac{y + 0,0483}{0,0105} \\
 x &= \frac{0,114 + 0,0483}{0,0105} \\
 x &= 15,4571 \text{ ppm}
 \end{aligned}$$

Efisiensi Penyerapan Pewarna Tekstil Komersial Ungu (Hidrogel Oven)

$$\text{Efisiensi Penyerapan} = \frac{(C_0 - C_1)}{C_0} \times 100\%$$

a. Hidrogel 0,09 mol/mol AGU (AOH)

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(111,1809 \text{ ppm} - 32,7238 \text{ ppm})}{111,1809 \text{ ppm}} \times 100\% \\
 &= \frac{78,4571}{111,1809} \times 100\% \\
 &= 70,5670\%
 \end{aligned}$$

b. Hidrogel 0,14 mol/mol AGU (BOH)

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(111,1809 \text{ ppm} - 26,5809 \text{ ppm})}{111,1809 \text{ ppm}} \times 100\% \\
 &= \frac{84,6}{111,1809} \times 100\% \\
 &= 76,0922\%
 \end{aligned}$$

c. Hidrogel 0,24 mol/mol AGU (COH)

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(111,1809 \text{ ppm} - 23,5904 \text{ ppm})}{111,1809 \text{ ppm}} \times 100\% \\
 &= \frac{87,5905}{111,1809} \times 100\% \\
 &= 78,7819\%
 \end{aligned}$$

d. Hidrogel 0,48 mol/mol AGU (DOH)

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(111,1809 \text{ ppm} - 21,4952 \text{ ppm})}{111,1809 \text{ ppm}} \times 100\% \\
 &= \frac{89,6857}{111,1809} \times 100\% \\
 &= 80,6664\%
 \end{aligned}$$

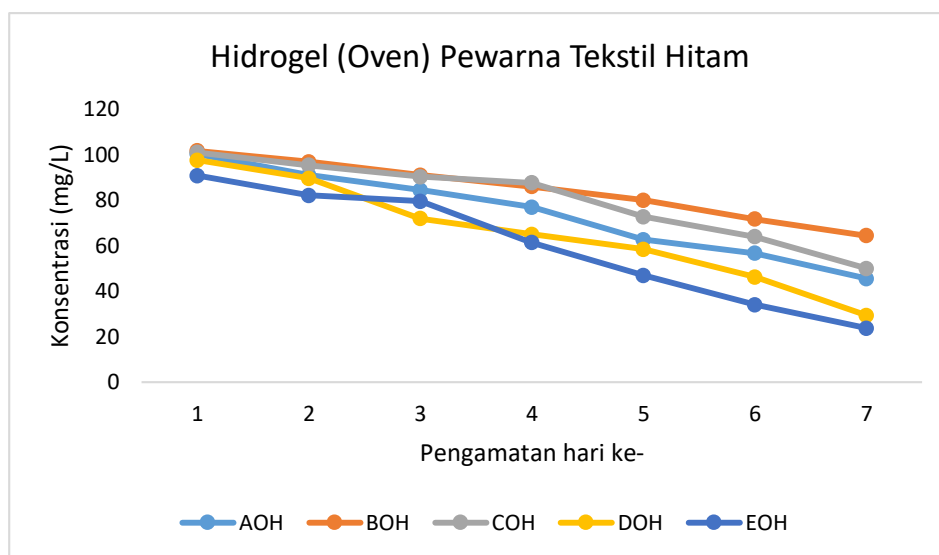
e. Hidrogel 0,96 mol/mol AGU (EOH)

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(111,1809 \text{ ppm} - 15,4571 \text{ ppm})}{111,1809 \text{ ppm}} \times 100\% \\
 &= \frac{95,7238}{111,1809} \times 100\% \\
 &= 86,0973\%
 \end{aligned}$$

k. Adsorpsi Hidrogel (Oven) Pewarna Tekstil (Hitam)

Sampel	Absorbansi		Rata2	Slope	Intersept	Concentration	Efisiensi Penyerapan (%)
	Simplo	Duplo					
AOH	0,3762	0,3764	0,3607	0,0095	0,0708	45,4280	59,7831
	0,3459	0,3450					
BOH	0,6046	0,6020	0,5405	0,0095	0,0708	64,3473	43,0342
	0,4783	0,4779					
COH	0,4433	0,4438	0,4037	0,0095	0,0708	49,9526	55,7776
	0,3638	0,3645					
DOH	0,1891	0,1882	0,2069	0,0095	0,0708	29,2368	74,1170
	0,2269	0,2236					
EOH	0,1541	0,1555	0,1532	0,0095	0,0708	23,5842	79,1212
	0,1515	0,1519					

Grafik



Analisis Data (Pewarna Tekstil Komersial Hitam) (Hidrogel Oven)

Penentuan konsentrasi sisa pewarna tekstil komersial dengan menggunakan persamaan linier

$$y = 0,0095x + 0,0708$$

$$y = bx+a$$

Penentuan Konsentrasi Awal

$$x = \frac{y + 0,0708}{0,0095}$$

$$x = \frac{1,00230 + 0,0708}{0,0095}$$

$$x = 112,95789 \text{ ppm}$$

a. Hidrogel 0,09 mol/mol AGU (AOH)

$$x = \frac{y + 0,0708}{0,0095}$$

$$x = \frac{0,360767 + 0,0708}{0,0095}$$

$$x = 45,42806 \text{ ppm}$$

b. Hidrogel 0,14 mol/mol AGU (BOH)

$$x = \frac{y + 0,0708}{0,0095}$$

$$x = \frac{0,5405 + 0,0708}{0,0095}$$

$$x = 64,34736 \text{ ppm}$$

c. Hidrogel 0,24 mol/mol AGU (COH)

$$x = \frac{y + 0,0708}{0,0095}$$

$$x = \frac{0,40375 + 0,0708}{0,0095}$$

$$x = 49,95263 \text{ ppm}$$

d. Hidrogel 0,48 mol/mol AGU (DOH)

$$\begin{aligned}
 x &= \frac{y + 0,0708}{0,0095} \\
 x &= \frac{0,20695 + 0,0708}{0,0095} \\
 x &= 29,23684 \text{ ppm}
 \end{aligned}$$

e. Hidrogel 0,96 mol/mol AGU (EOH)

$$\begin{aligned}
 x &= \frac{y + 0,0708}{0,0095} \\
 x &= \frac{0,15325 + 0,0708}{0,0095} \\
 x &= 23,58241 \text{ ppm}
 \end{aligned}$$

Efisiensi Penyerapan Pewarna Tekstil Komersial Hitam (Hidrogel Oven)

$$\text{Efisiensi Penyerapan} = \frac{(C_0 - C_1)}{C_0} \times 100\%$$

a. Hidrogel 0,09 mol/mol AGU (AOH)

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(112,95789 \text{ ppm} - 45,42806 \text{ ppm})}{112,95789 \text{ ppm}} \times 100\% \\
 &= \frac{67,52983}{112,95789} \times 100\% \\
 &= 59,7831\%
 \end{aligned}$$

b. Hidrogel 0,14 mol/mol AGU (BOH)

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(112,95789 \text{ ppm} - 64,34736 \text{ ppm})}{112,95789 \text{ ppm}} \times 100\% \\
 &= \frac{48,61053}{112,95789} \times 100\% \\
 &= 43,0342\%
 \end{aligned}$$

c. Hidrogel 0,24 mol/mol AGU (COH)

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(112,95789 \text{ ppm} - 49,95263 \text{ ppm})}{112,95789 \text{ ppm}} \times 100\% \\
 &= \frac{63,00526}{112,95789} \times 100\% \\
 &= 55,7776\%
 \end{aligned}$$

f. Hidrogel 0,48 mol/mol AGU (DOH)

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(112,95789 \text{ ppm} - 29,23684 \text{ ppm})}{112,95789 \text{ ppm}} \times 100\% \\
 &= \frac{83,72105}{112,95789} \times 100\% \\
 &= 74,1170\%
 \end{aligned}$$

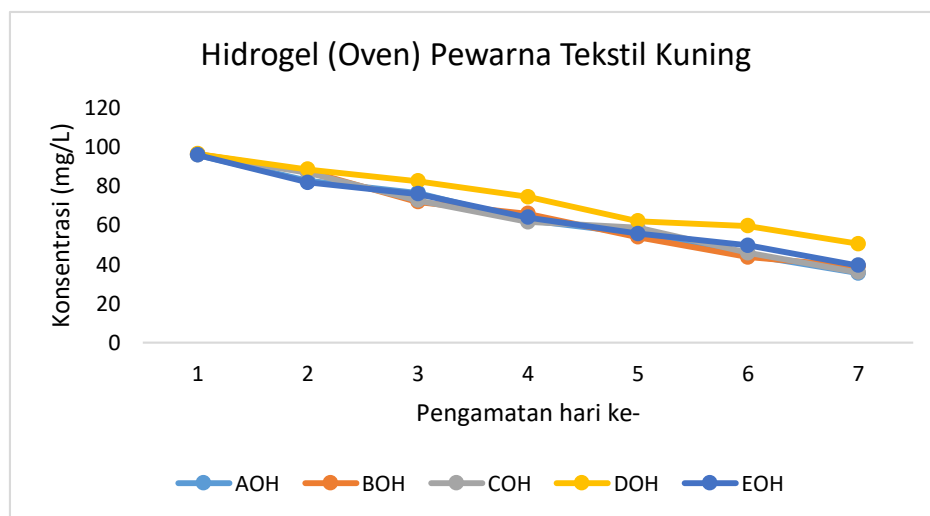
g. Hidrogel 0,96 mol/mol AGU (EOH)

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(112,95789 \text{ ppm} - 23,58421 \text{ ppm})}{112,95789 \text{ ppm}} \times 100\% \\
 &= \frac{89,37368}{112,95789} \times 100\% \\
 &= 79,1212\%
 \end{aligned}$$

I. Adsorpsi Hidrogel (Oven) Pewarna Tekstil Kuning)

Sampel	Absorbansi		Rata2	Slope	Intersept	Concentration	Efisiensi Penyerapan (%)
	Simple	Duplo					
AOH	0,6128	0,6143	0,5804	0,0174	0,0366	35,2925	65,0708
	0,5451	0,5483					
BOH	0,5403	0,5418	0,6398	0,0174	0,0366	38,7011	61,6972
	0,7389	0,7375					
COH	0,6205	0,6200	0,5876	0,0174	0,0366	35,7011	64,664
	0,5547	0,5555					
DOH	0,7787	0,780	0,8396	0,0174	0,0366	50,1867	50,3299
	0,8988	0,9011					
EOH	0,6312	0,6310	0,6476	0,0174	0,0366	39,1508	61,2522
	0,6651	0,6632					

Grafik



Analisis Data (Pewarna Tekstil Komersial Kuning) (Hidrogel Oven)

Penentuan konsentrasi sisa pewarna tekstil komersial dengan menggunakan persamaan linier

$$y = 0,0174x + 0,0336$$

$$y = bx + a$$

Penentuan Konsentrasi Awal

$$x = \frac{y + 0,0336}{0,0174}$$

$$x = \frac{1,7245 + 0,0336}{0,0174}$$

$$x = 101,04023 \text{ ppm}$$

a. Hidrogel 0,09 mol/mol AGU (AOH)

$$x = \frac{y + 0,0336}{0,0174}$$

$$x = \frac{0,58049 + 0,0336}{0,0174}$$

$$x = 35,29252 \text{ ppm}$$

b. Hidrogel 0,14 mol/mol AGU (BOH)

$$x = \frac{y + 0,0336}{0,0174}$$

$$x = \frac{0,6398 + 0,0336}{0,0174}$$

$$x = 38,70114 \text{ ppm}$$

c. Hidrogel 0,24 mol/mol AGU (COH)

$$x = \frac{y + 0,0336}{0,0174}$$

$$x = \frac{0,5876 + 0,0336}{0,0174}$$

$$x = 35,70114 \text{ ppm}$$

d. Hidrogel 0,48 mol/mol AGU (DOH)

$$x = \frac{y + 0,0336}{0,0174}$$

$$x = \frac{0,83965 + 0,0336}{0,0174}$$

$$x = 50,18678 \text{ ppm}$$

e. Hidrogel 0,96 mol/mol AGU (EOH)

$$x = \frac{y + 0,0336}{0,0174}$$

$$x = \frac{0,647625 + 0,0336}{0,0174}$$

$$x = 39,15086 \text{ ppm}$$

Efisiensi Penyerapan Pewarna Tekstil Komersial Kuning (Hidrogel Oven)

$$\text{Efisiensi Penyerapan} = \frac{(C_0 - C_1)}{C_0} \times 100\%$$

a. Hidrogel 0,09 mol/mol AGU (AOH)

$$\text{EP} = \frac{(C_0 - C_1)}{C_0} \times 100\%$$

$$= \frac{(101,04023 \text{ ppm} - 35,29252 \text{ ppm})}{101,04023 \text{ ppm}} \times 100\%$$

$$= \frac{65,74771}{101,04023} \times 100\%$$

$$= 65,0708\%$$

b. Hidrogel 0,14 mol/mol AGU (BOH)

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(101,04023 \text{ ppm} - 38,70114 \text{ ppm})}{101,04023 \text{ ppm}} \times 100\% \\
 &= \frac{62,33909}{101,04023} \times 100\% \\
 &= 61,6972\%
 \end{aligned}$$

c. Hidrogel 0,24 mol/mol AGU (COH)

$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(101,04023 \text{ ppm} - 35,70114 \text{ ppm})}{101,04023 \text{ ppm}} \times 100\% \\
 &= \frac{65,33909}{101,04023} \times 100\% \\
 &= 64,6664\%
 \end{aligned}$$

d. Hidrogel 0,48 mol/mol AGU (DOH)

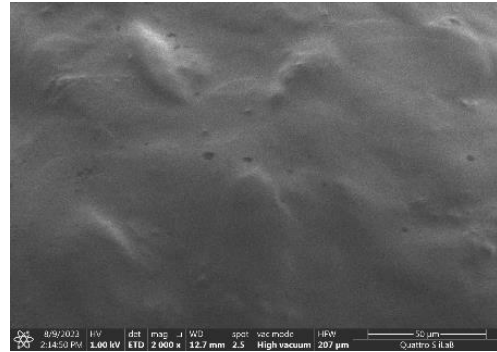
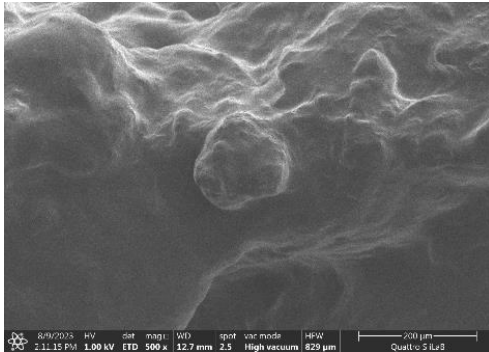
$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(101,04023 \text{ ppm} - 50,18678 \text{ ppm})}{101,04023 \text{ ppm}} \times 100\% \\
 &= \frac{50,85345}{101,04023} \times 100\% \\
 &= 50,32990\%
 \end{aligned}$$

e. Hidrogel 0,96 mol/mol AGU (EOH)

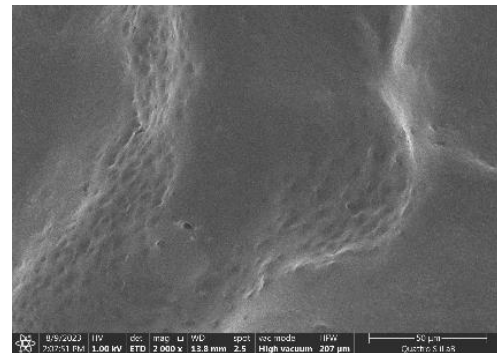
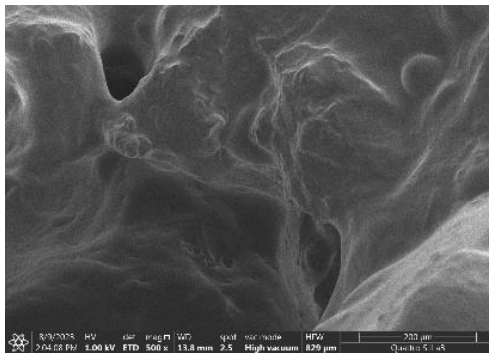
$$\begin{aligned}
 \text{EP} &= \frac{(C_0 - C_1)}{C_0} \times 100\% \\
 &= \frac{(101,04023 \text{ ppm} - 39,15086 \text{ ppm})}{101,04023 \text{ ppm}} \times 100\% \\
 &= \frac{61,88937}{101,04023} \times 100\% \\
 &= 61,25220\%
 \end{aligned}$$

6. Karakterisasi Hidrogel

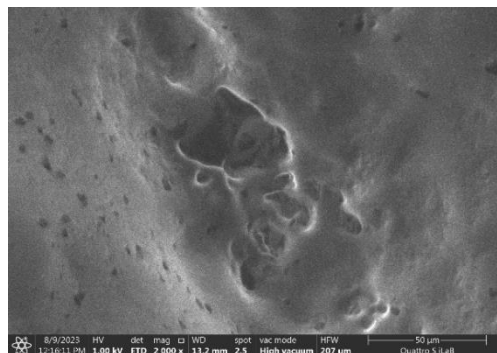
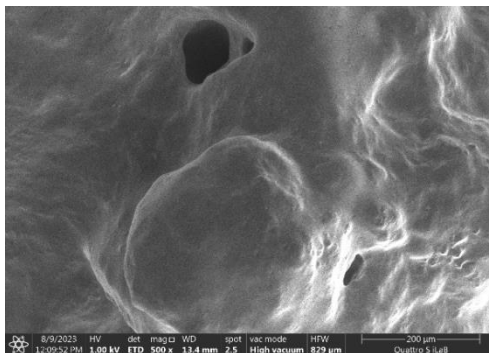
a. Morfologi Hidrogel dengan SEM



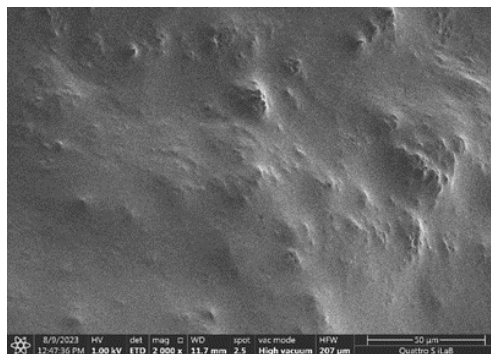
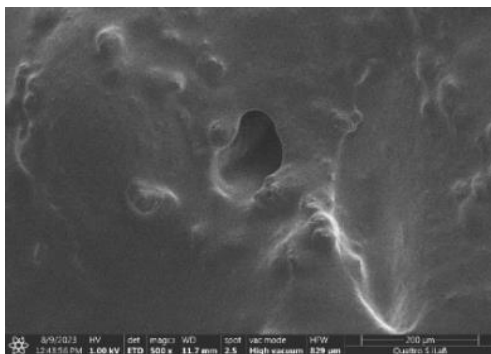
Hasil Analisa Hidrogel (Oven) CMSS 0,09 mol/mol AGU dengan perbesaran 500 x dan 2000 x



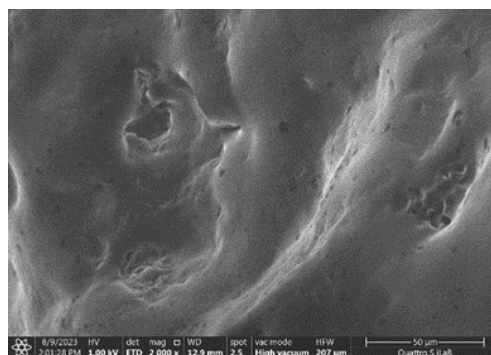
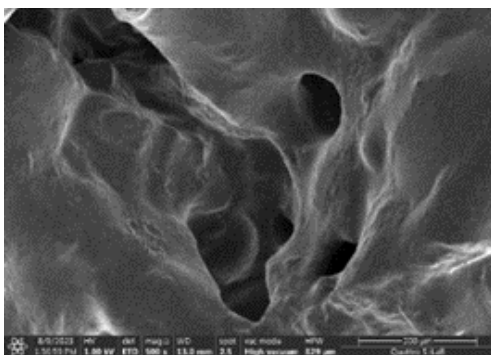
Hasil Analisa Hidrogel (Oven) CMSS 0,14 mol/mol AGU dengan perbesaran 500 x dan 2000 x



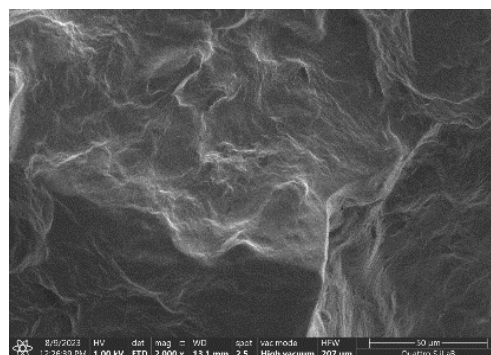
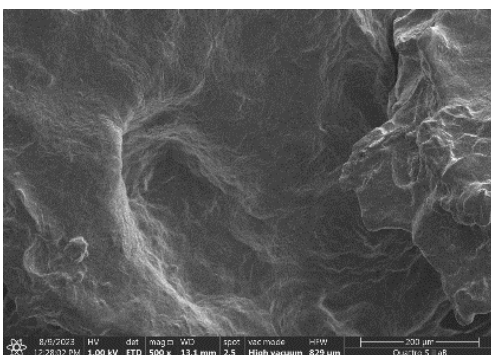
Hasil Analisa Hidrogel (Oven) CMSS 0,24 mol/mol AGU dengan perbesaran 500 x dan 2000 x



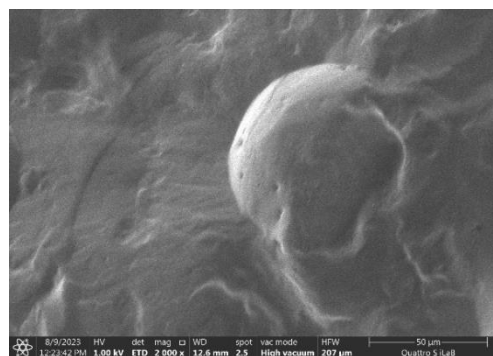
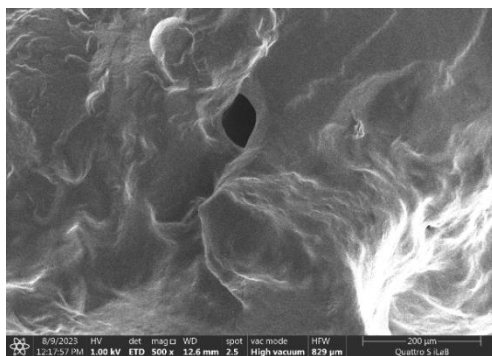
Hasil Analisa Hidrogel (Oven) CMSS 0,48 mol/mol AGU dengan perbesaran 500 x dan 2000 x



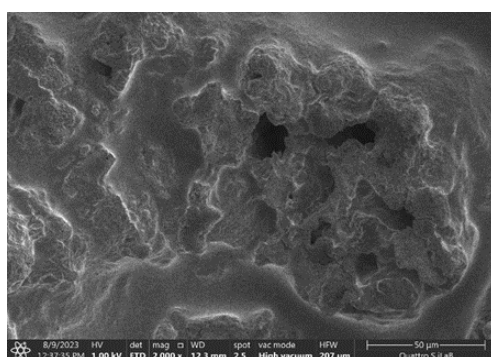
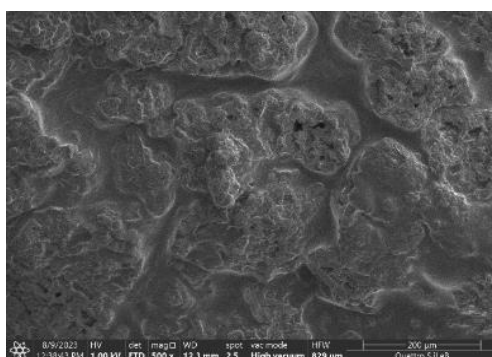
Hasil Analisa Hidrogel (Oven) CMSS 0,96 mol/mol AGU dengan perbesaran 500 x dan 2000 x



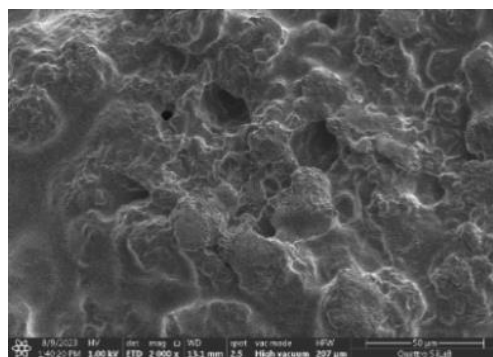
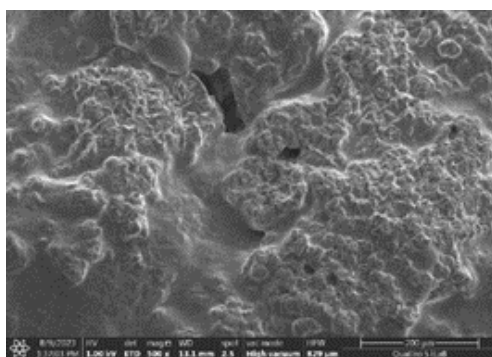
Hasil Analisa Hidrogel (*Freeze Dry*) CMSS 0,09 mol/mol AGU dengan perbesaran 500 x dan 2000 x



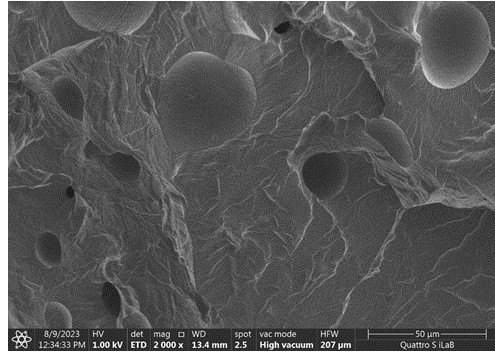
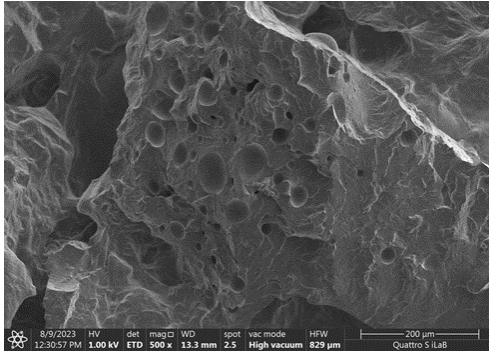
Hasil Analisa Hidrogel (*Freeze Dry*) CMSS 0,14 mol/mol AGU dengan perbesaran 500 x dan 2000 x



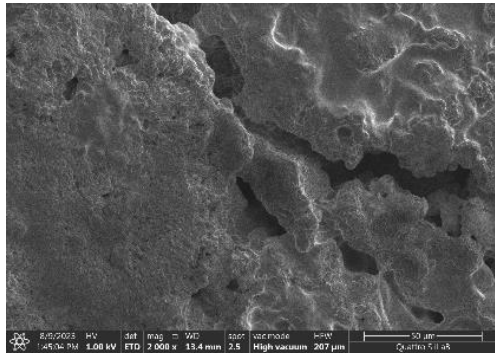
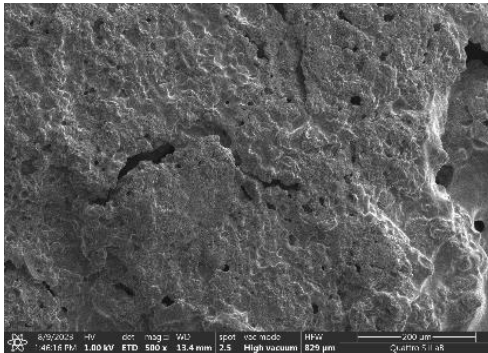
Hasil Analisa Hidrogel (*Freeze Dry*) CMSS 0,24 mol/mol AGU dengan perbesaran 500 x dan 2000 x



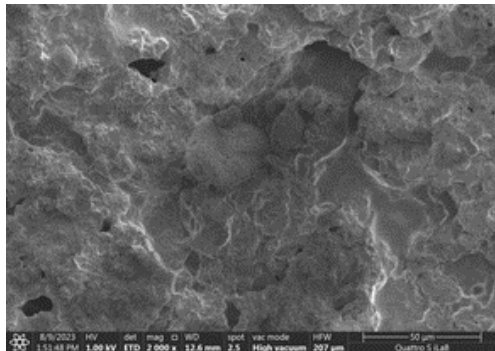
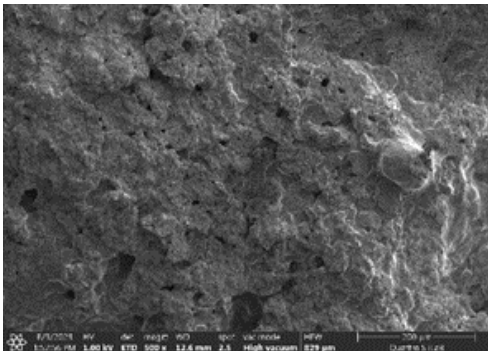
Hasil Analisa Hidrogel (*Freeze Dry*) CMSS 0,48 mol/mol AGU dengan perbesaran 500 x dan 2000 x



Hasil Analisa Hidrogel (*Freeze Dry*) CMSS 0,96 mol/mol AGU dengan perbesaran 500 x dan 2000 x



Hasil Analisa Hidrogel (Oven) setelah adsorpsi pewarna tekstil komersial dengan perbesaran 500 x dan 2000 x.

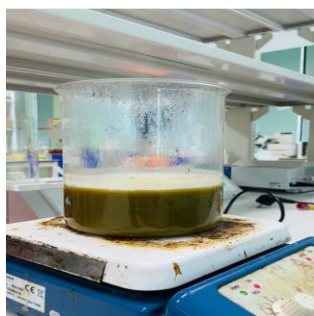


Hasil Analisa Hidrogel (*Freeze Dry*) setelah adsorpsi pewarna tekstil komersial dengan perbesaran 500 x dan 2000 x.

LAMPIRAN 3. DOKUMENTASI PENELITIAN



Penimbangan serbuk
Gracilaria verrucosa



Isolasi selulosa dengan
 HNO_3



Penyaringan pulp



Delignifikasi dengan
 NaOH



Hasil delignifikasi



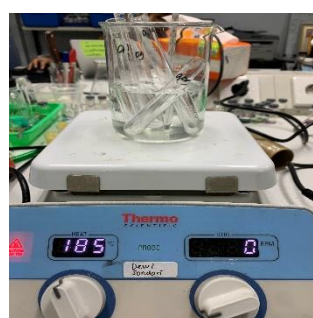
Hasil bleaching
dengan H_2O_2 10%



Sintesis CMSS dengan
pati sagu dan SMCA



Pemisahan dengan
centrifuge



Pengujian Swelling
Power dan Water
Soluble Index CMSS



Sintesis Hidrogel



Pengeringan menggunakan oven



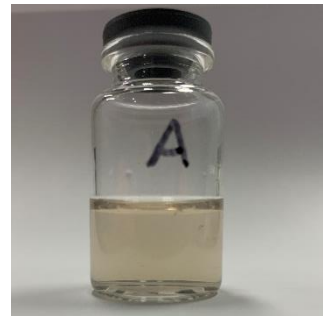
Hasil hidrogel menggunakan oven



Pengeringan menggunakan freeze dry



Hasil hidrogel menggunakan freeze dry



Uji rasio swelling dan fraksi gel hidrogel



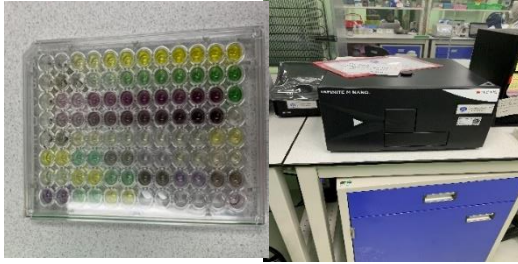
Karakterisasi Hidrogel dengan FTIR



Analisis morfologi hidrogel dengan SEM



Adsorpsi hidrogel dengan pewarna tekstil komersial



Analisis adsorpsi
menggunakan
microplate reader



Karakterisasi Hidrogel
dengan FTIR dan analisis
morfologi menggunakan
SEM