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LAMPIRAN

Lampiran 1. Hasil pengujian karakteristik glukosamin dari kitin dan kitosan

Hasil pengujian rendemen dan kelarutan pada kitin

Perlakuan	Ulangan	Rendemen	Kelarutan
HCl 10%	1	85,76%	27,67%
	2	90,77%	21,23%
	3	90,86%	23,02%
HCl 15%	1	79,61%	13,72%
	2	76,42%	8,06%
	3	78,68%	16,55%
HCl 20%	1	52,11%	9,68%
	2	55,28%	9,26%
	3	55,40%	10,70%
HCl 25%	1	47,82%	54,58%
	2	49,49%	57,44%
	3	45,76%	55,89%

Hasil pengujian rendemen, kelarutan, titik leleh, LoD pada kitosan

Perlakuan	Ulangan	Rendemen	Kelarutan	LoD	Titik Leleh
HCl 4%	1	79,83%	82,72%	0,90%	193,20
	2	79,40%	87,90%	0,50%	
	3	79,01%	87,59%	0,30%	
HCl 8%	1	84,45%	90,47%	0,59%	192,30
	2	83,35%	90,47%	0,59%	
	3	81,84%	90,42%	0,50%	
HCl 12%	1	71,41%	91,61%	0,40%	191,60
	2	71,61%	89,31%	0,30%	
	3	70,72%	90,95%	0,10%	
HCl 16%	1	60,52%	92,12%	0,79%	190,90
	2	61,82%	90,74%	0,69%	
	3	60,76%	91,01%	0,30%	

Lampiran 2. Hasil uji ANOVA dengan Program *IBM SPSS Statistics 22*

Hasil uji ANOVA pada parameter kelarutan glukosamin dari kitosan

ANOVA

Kelarutan					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	51.276	3	17.092	6.587	.015
Within Groups	20.758	8	2.595		
Total	72.034	11			

Multiple Comparisons

Dependent Variable: Kelarutan							
	(I) Konsentrasi	(J) Konsentrasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	HCL 4%	HCL 8%	-4.38333 [*]	1.31524	.010	-7.4163	-1.3504
		HCL 12%	-4.55333 [*]	1.31524	.009	-7.5863	-1.5204
		HCL 16%	-5.22000 [*]	1.31524	.004	-8.2530	-2.1870
	HCL 8%	HCL 4%	4.38333 [*]	1.31524	.010	1.3504	7.4163
		HCL 12%	-.17000	1.31524	.900	-3.2030	2.8630
		HCL 16%	-.83667	1.31524	.542	-3.8696	2.1963
	HCL 12%	HCL 4%	4.55333 [*]	1.31524	.009	1.5204	7.5863
		HCL 8%	.17000	1.31524	.900	-2.8630	3.2030
		HCL 16%	-.66667	1.31524	.626	-3.6996	2.3663
	HCL 16%	HCL 4%	5.22000 [*]	1.31524	.004	2.1870	8.2530
		HCL 8%	.83667	1.31524	.542	-2.1963	3.8696
		HCL 12%	.66667	1.31524	.626	-2.3663	3.6996

*. The mean difference is significant at the 0.05 level.

Kelarutan

	Konsentrasi	N	Subset for alpha = 0.05	
			1	2
Duncan ^a	HCL 4%	3	86.0700	
	HCL 8%	3		90.4533
	HCL 12%	3		90.6233
	HCL 16%	3		91.2900
	Sig.			1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Hasil uji ANOVA pada parameter rendemen glukosamin dari kitosan

ANOVA

Rendemen					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	868.818	3	289.606	448.683	.000
Within Groups	5.164	8	.645		
Total	873.982	11			

Multiple Comparisons

Dependent Variable: Rendemen							
	(I) konsentrasi	(J) konsentrasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	HCl 4%	HCl 8%	-3.80000'	.65598	.000	-5.3127	-2.2873
		HCl 12%	8.16667'	.65598	.000	6.6540	9.6794
		HCl 16%	18.38000'	.65598	.000	16.8673	19.8927
	HCl 8%	HCl 4%	3.80000'	.65598	.000	2.2873	5.3127
		HCl 12%	11.96667'	.65598	.000	10.4540	13.4794
		HCl 16%	22.18000'	.65598	.000	20.6673	23.6927
	HCl 12%	HCl 4%	-8.16667'	.65598	.000	-9.6794	-6.6540
		HCl 8%	-11.96667'	.65598	.000	-13.4794	-10.4540
		HCl 16%	10.21333'	.65598	.000	8.7006	11.7260
	HCl 16%	HCl 4%	-18.38000'	.65598	.000	-19.8927	-16.8673
		HCl 8%	-22.18000'	.65598	.000	-23.6927	-20.6673
		HCl 12%	-10.21333'	.65598	.000	-11.7260	-8.7006

*. The mean difference is significant at the 0.05 level.

Kelarutan

	Konsentrasi	N	Subset for alpha = 0.05	
			1	2
Duncan ^a	HCl 4%	3	86.0700	
	HCl 8%	3		90.4533
	HCl 12%	3		90.6233
	HCl 16%	3		91.2900
	Sig.			1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Hasil uji ANOVA pada parameter LoD glukosamin dari kitosan

ANOVA

LoD					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.213	3	.071	1.527	.281
Within Groups	.373	8	.047		
Total	.586	11			

Multiple Comparisons

Dependent Variable: LoD

	(I) konsentrasi	(J) konsentrasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	HCI 4%	HCI 8%	.00667	.17626	.971	-.3998	.4131
		HCI 12%	.30000	.17626	.127	-.1065	.7065
		HCI 16%	-.02667	.17626	.883	-.4331	.3798
	HCI 8%	HCI 4%	-.00667	.17626	.971	-.4131	.3998
		HCI 12%	.29333	.17626	.135	-.1131	.6998
		HCI 16%	-.03333	.17626	.855	-.4398	.3731
	HCI 12%	HCI 4%	-.30000	.17626	.127	-.7065	.1065
		HCI 8%	-.29333	.17626	.135	-.6998	.1131
		HCI 16%	-.32667	.17626	.101	-.7331	.0798
	HCI 16%	HCI 4%	.02667	.17626	.883	-.3798	.4331
		HCI 8%	.03333	.17626	.855	-.3731	.4398
		HCI 12%	.32667	.17626	.101	-.0798	.7331

LoD

konsentrasi	N	Subset for alpha = 0.05	
		1	
Duncan ^a	HCI 12%	3	.2667
	HCI 8%	3	.5600
	HCI 4%	3	.5667
	HCI 16%	3	.5933
	Sig.		.120

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Hasil uji ANOVA pada parameter rendemen glukosamin dari kitin

Tests of Between-Subjects Effects

Dependent Variable: Rendemen

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3451.988 ^a	3	1150.663	253.126	.000
Intercept	54399.947	1	54399.947	1.197E4	.000
Perlakuan	3451.988	3	1150.663	253.126	.000
Error	36.367	8	4.546		
Total	57888.302	12			
Corrected Total	3488.355	11			

a. R Squared = .990 (Adjusted R Squared = .986)

Perlakuan

Dependent Variable: Rendemen

Perlakuan	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
HCl 10%	89.130	1.231	86.291	91.969
HCl 15%	78.237	1.231	75.398	81.075
HCl 20%	54.263	1.231	51.425	57.102
HCl 25%	47.690	1.231	44.851	50.529

Rendemen

Duncan

Perlakuan	N	Subset			
		1	2	3	4
HCl 25%	3	47.6900			
HCl 20%	3		54.2633		
HCl 15%	3			78.2367	
HCl 10%	3				89.1300
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = 4.546.

Hasil uji ANOVA pada parameter kelarutan glukosamin dari kitin

Tests of Between-Subjects Effects

Dependent Variable: Kelarutan

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4009.588 ^a	3	1336.529	165.332	.000
Intercept	7895.070	1	7895.070	976.642	.000
Perlakuan	4009.588	3	1336.529	165.332	.000
Error	64.671	8	8.084		
Total	11969.329	12			
Corrected Total	4074.259	11			

a. R Squared = .984 (Adjusted R Squared = .978)

kelarutan

Dependent Variable: Kelarutan

konsentrasi	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
HCl 10%	23.973	1.642	20.188	27.759
HCl 15%	12.777	1.642	8.991	16.562
HCl 20%	9.880	1.642	6.095	13.665
HCl 25%	55.970	1.642	52.185	59.755

Kelarutan

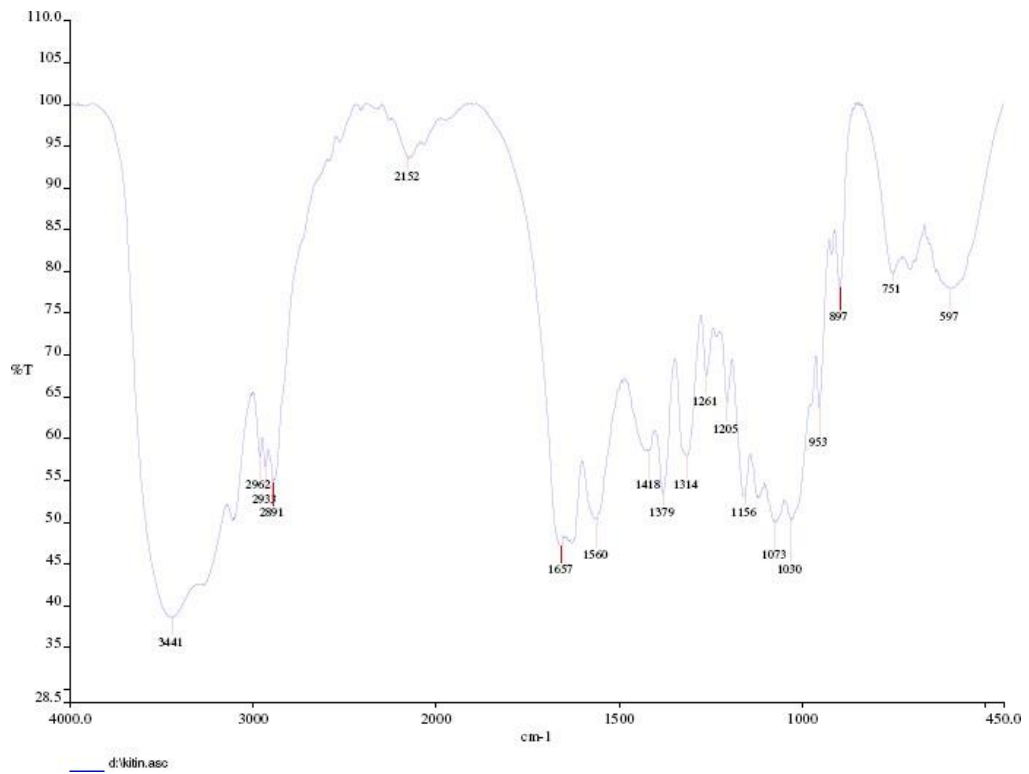
Duncan

Perlakuan	N	Subset		
		1	2	3
HCl 20%	3	9.8800		
HCl 15%	3	12.7767		
HCl 10%	3		23.9733	
HCl 25%	3			55.9700
Sig.		.247	1.000	1.000

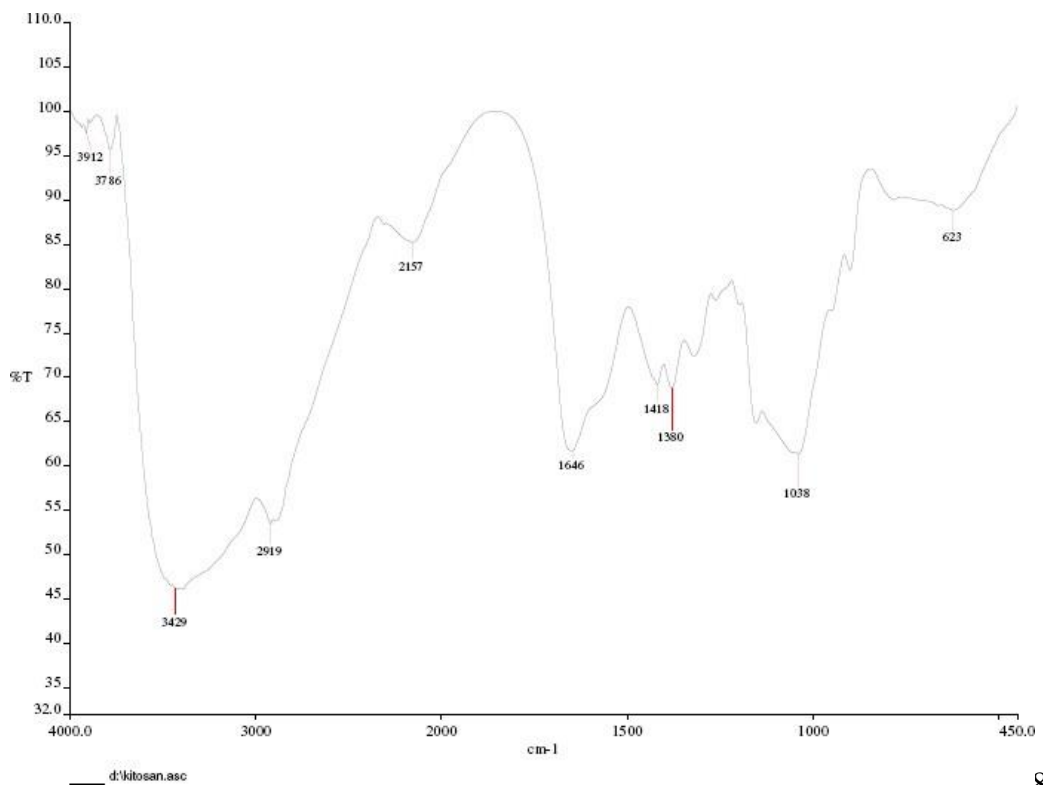
Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = 8.084.

Lampiran 3. Hasil Pembacaan Derajat Deasetilasi Kitin dan Kiosan

Kitin



Kitosan



Lampiran 4. Perhitungan nilai DD Kitin dan Kitosan

DD Kitin

$$A_{1650} = \text{Log} \frac{[100-47,50]}{[47,50-28,50]} = 0,4414$$

$$A_{3450} = \text{Log} \frac{[100-38,50]}{[38,50-28,50]} = 0,7888$$

$$\%DD = 100 - \frac{[0,4414 \times 100]}{[0,7888 \times 1,33]} = 42,07\%$$

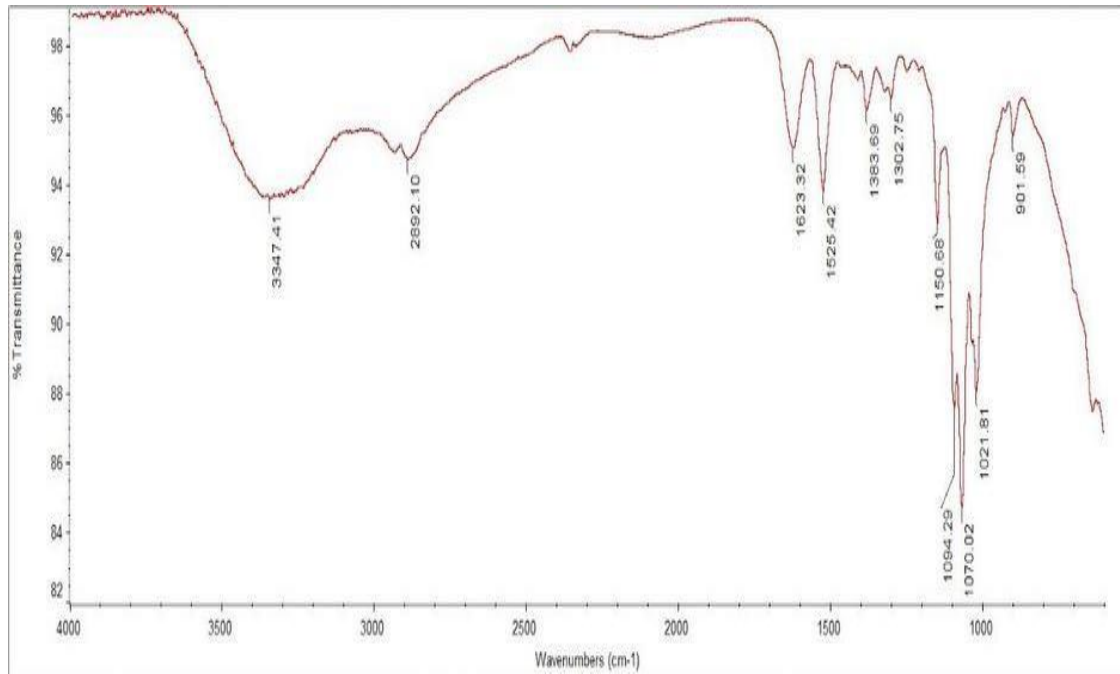
DD Kitosan

$$A_{1650} = \text{Log} \frac{[100-61,50]}{[61,50-32,00]} = 0,1156$$

$$A_{3450} = \text{Log} \frac{[100-46,00]}{[46,00-32,00]} = 0,5862$$

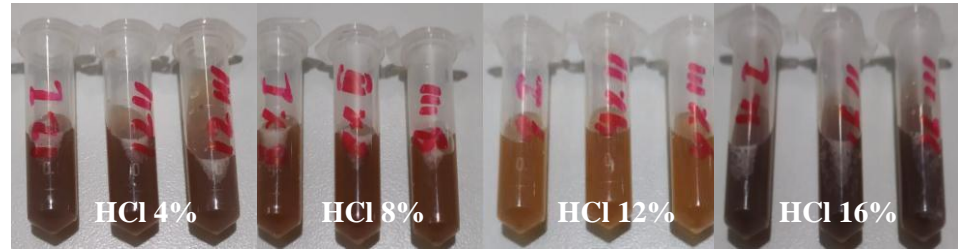
$$\%DD = 100 - \frac{[0,1156 \times 100]}{[0,5862 \times 1,33]} = 85,17\%$$

Lampiran 5. Hasil Pembacaan FTIR Glukosamin Hidroklorida dari Kitosan konsentrasi 8%

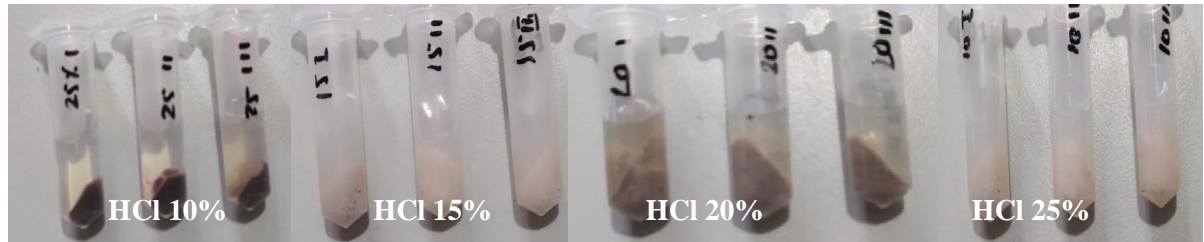


Lampiran 5. Dokumentasi Penelitian

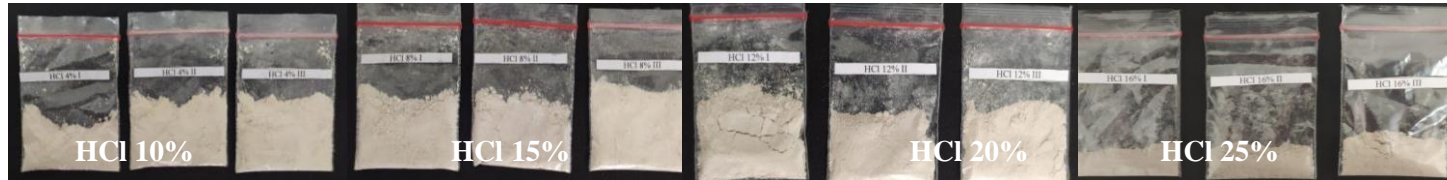
KELARUTAN GLUKOSAMIN DARI KITOSAN



KELARUTAN GLUKOSAMIN DARI KITIN



PENAMPAKAN GLUKOSAMIN DARI KITIN



PENAMPAKAN GLUKOSAMIN DARI KITOSAN

