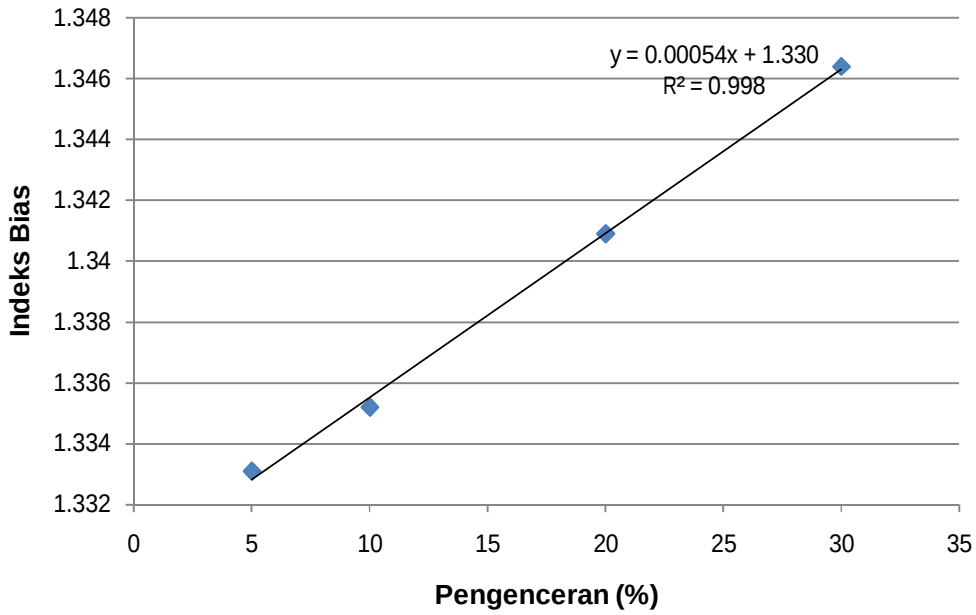
LAMPIRAN

Lampiran 1. Standarisasi Etanol Dengan Indeks Bias

a. Grafik Hubungan Standarisasi Etanol Dengan Indeks Bias

Dari hasil penghubungan antara konsentrasi etanol murni dengan indeks biasnya didapatkan kurva standar dan rumus penentuan konsentrasi bioetanol sampel.



Sesuai data grafik diatas, dapat diketahui bahwa:

Y = 0,00031x + 1,333

Dengan Y = Nilai Indeks Bias Sampel, dan

X = Konsentrasi Etanol Sampel

Rumus tersebut merupakan rumus yang digunakan dalam penentuan konsentrasi bioetanol yang terdapat pada setiap sampel.

b. Tabel Pengenceran Etanol Murni Untuk standarisasi Bioetanol

No.	Kadar Etanol (%)	Rata-rata Indeks Bias
1	5	1.3331
2	10	1.3352
3	20	1.3409
4	30	1.3464

Lampiran 2. Analisis Konsentrasi Bioetanol

Metode	Salinitas (ppt)	Indeks bias		kadar bioetanol		
		Simplo	Duplo	Simplo	Duplo	Rata-rata
0 Hari	5,5	1.33463	1.33463	8.57	8.57	8,75
	8	1.33556	1.33558	10.30	10.33	10.31
	15	1.33650	1.33650	12.04	12.04	14.04
Fermentasi 4 Hari Tanpa Khamir	5,5	1.34037	1.34083	16.98	20.06	18.52
	8	1.33917	1.34207	19.20	22.35	20.78
	15	1.33873	1.33977	16.17	18.09	17.13
Fermentasi 4 Hari Dengan Khamir	5,5	1.34183	1.34187	21.91	21.98	25.28
	8	1.34277	1.34293	23.65	23.94	28.14
	15	1.3385	1.33847	15.74	15.69	15.65

Dari kurva standarisasi etanol indeks bias pada diperoleh persamaan regresi y = 0,00054x + 1,330 dengan memasukkan nilai y= rata-rata indeks bias , maka diperoleh kadar bioetanol yaitu:

Lanjutan Lampiran 2.

a. Analisis Kadar Etanol 0 hari

Y_I = 0,00054x + 1,330

1,33463 = 0,00054x + 1,330

$$x = \frac{1{,}33463 - 1{,}330}{0{,}00054}$$

x = 8.57%

Y_{II} = 0,00054x + 1,330

1,33557 = 0,00054x + 1,330

$$x = \frac{1{,}33557 - 1{,}330}{0{,}00054}$$

x = 10,31 %

Y_{III} = 0,00054x + 1,330

1,33650 = 0,00054x + 1,330

$$x = \frac{1{,}33650 - 1{,}330}{0{,}00054}$$

x = 12,04%

b. Analisis Kadar Bioetanol Hasil Fermentasi Tanpa Penambahan Khamir

Y_I = 0,00054x + 1,330

1,3400 = 0,00054x + 1,330

$$x = \frac{1{,}3400 - 1{,}330}{0{,}00054}$$

x = 18,52%

Lanjutan Lampiran 2.

Y_{II} = 0,00054x + 1,330

1,34122 = 0,00054x + 1,330

$$x = \frac{1{,}34122 - 1{,}330}{0{,}00054}$$

x = 20,78%

Y_{III} = 0,00054x + 1,330

1,33925 = 0,00054x + 1,330

$$x = \frac{1{,}33925 - 1{,}330}{0{,}00054}$$

x = 17,13 %

c. Analisis Kadar Bioetanol Hasil Fermentasi Dengan Penambahan Khamir

Y_{I} = 0,00054x + 1,330

1,34185 = 0,00054x + 1,330

$$x = \frac{1{,}34185 - 1{,}330}{0{,}00054}$$

x = 21,94%

Y_{II} = 0,00054x + 1,330

1,34285 = 0,00054x + 1,330

$$x = \frac{1{,}34285 - 1{,}330}{0{,}00054}$$

x = 23,80%

Lanjutan Lampiran 2.

Y_{III} = 0,00054x + 1,330

1,33849 = 0,00054x + 1,330

$$x = \frac{1{,}33849 - 1{,}330}{0{,}00054}$$

x = 15,71%

Lampiran 3. Analisis Two Way Anova

Dependent Variable:kadar

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	448,833[a]	8	56,104	43,552	,000
Intercept	4932,562	1	4932,562	3829,018	,000
salinitas	33,533	2	16,766	13,015	,002
metode	352,784	2	176,392	136,928	,000
salinitas * metode	62,516	4	15,629	12,132	,001
Error	11,594	9	1,288		
Total	5392,989	18			
Corrected Total	460,427	17			

a. R Squared = ,975 (Adjusted R Squared = ,952)

Lampiran 4. Uji Lanjut Tukey

a. Hubungan Antara Metode dengan Kadar Etanol

kadar

Tukey HSD

(I) metode	(J) metode	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0 hari	tanpa khamir	-8,4400*	,65529	,000	-10,2696	-6,6104
	Penambahan khamir	-10,1167*	,65529	,000	-11,9462	-8,2871
Fermentasi 4 Hari tanpa khamir	0 hari	8,4400*	,65529	,000	6,6104	10,2696
	Penambahan khamir	-1,6767	,65529	,072	-3,5062	,1529
Fermentasi 4 Hari dengan Penambahan khamir	0 hari	10,1167*	,65529	,000	8,2871	11,9462
	tanpa khamir	1,6767	,65529	,072	-,1529	3,5062

Based on observed means.

The error term is Mean Square(Error) = 1,288.

*. The mean difference is significant at the ,05 level.

kadar

Tukey HSD[a,b]

metode	N	Subset	
		1	2
0 hari	6	10,3683	
tanpa khamir	6		18,8083
Penambahan khamir	6		20,4850
Sig.		1,000	,072

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 1,288.

a. Uses Harmonic Mean Sample Size = 6,000.

b. Alpha = ,05.

b. Hubungan Antara Kadar Bioetanol dengan Salinitas

kadar

Tukey HSD

(I) salinitas	(J) salinitas	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Salinitas 5,5 ppt	salinitas 8 ppt	-1,8900*	,65529	,043	-3,7196	-,0604
	salinitas 15 ppt	1,4433	,65529	,124	-,3862	3,2729
salinitas 8 ppt	Salinitas 5,5 ppt	1,8900*	,65529	,043	,0604	3,7196
	salinitas 15 ppt	3,3333*	,65529	,002	1,5038	5,1629
salinitas 15 ppt	Salinitas 5,5 ppt	-1,4433	,65529	,124	-3,2729	,3862
	salinitas 8 ppt	-3,3333*	,65529	,002	-5,1629	-1,5038

Based on observed means.

The error term is Mean Square(Error) = 1,288.

*. The mean difference is significant at the ,05 level.

kadar

Tukey HSD[a,b]

salinitas	N	Subset	
		1	2
salinitas 15 ppt	6	14,9617	
Salinitas 5,5 ppt	6	16,4050	
salinitas 8 ppt	6		18,2950
Sig.		,124	1,000

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 1,288.

a. Uses Harmonic Mean Sample Size = 6,000.

b. Alpha = ,05.

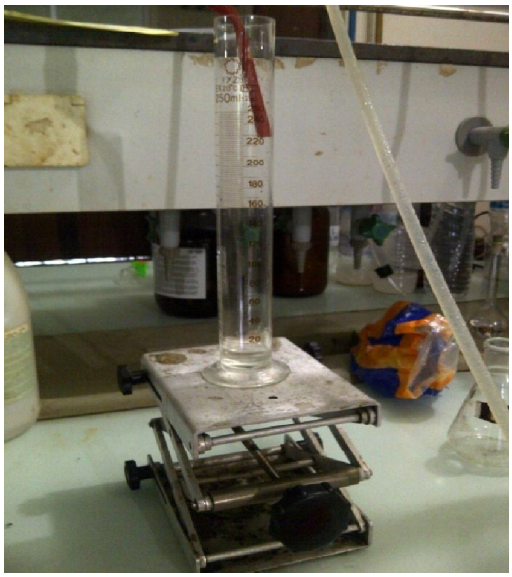
Lampiran 5. Gambar Penelitian

Proses Fermentasi

Sentrifugal

Labu Destilasi

Reflux Kondensor



Bioetanol Hasil Destilasi

Destilator