



LAMPIRAN



DATA HASIL PENGUKURAN DAN EFISIENSI

Hasil Analisa Konsentrasi BOD

Waktu (hari)	Reaktor Uji			Reaktor Kontrol		
	Inlet (mg/l)	Outlet (mg/l)	Efisiensi (%)	Inlet (mg/l)	Outlet (mg/l)	Efisiensi (%)
0	129.0323	129.0323	0	129.8323	129.8323	0
3	129.0323	64.5161	50.00004	129.8323	96.7742	25.4622
6	129.0323	32.2581	74.99998	129.8323	63.7161	50.9243
9	129.0323	59.2191	54.10521	129.8323	85.9766	33.7787
12	129.0323	64.4839	50.02499	129.8323	108.2371	16.6331

Hasil Analisa Jumlah Escherichia coli

Waktu (hari)	Reaktor Uji			Reaktor Kontrol		
	Inlet MPN/100ml	Outlet MPN/100ml	Efisiensi (%)	Inlet MPN/100ml	Outlet MPN/100ml	Efisiensi (%)
0	>1898	>1898	0	>1898	>1898	0
3	>1898	438	76.9231	>1898	>1898	0
6	>1898	271	85.7218	>1898	438	76.9231
9	>1898	139	92.6765	>1898	271	85.7218
12	>1898	116	93.8883	>1898	190	89.9895

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2

ANALISA STATISTIK UNIANOVA

Univariate Analysis of Variance of BOD

Between-Subjects Factors

		N
MEDIA	1.00	5
	2.00	5
WAKTU	.00	2
	3.00	2
	6.00	2
	9.00	2
	12.00	2

Tests of Between-Subjects Effects

Dependent Variable: BOD

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8835.396	5	1767.079	13.932	.012
Intercept	69563.240	1	69563.240	548.449	.000
MEDIA	1823.224	1	1823.224	14.375	.019
WAKTU	7012.172	4	1753.043	13.821	.013
Error	507.345	4	126.836		
Total	78905.981	10			
Corrected Total	9342.741	9			

a R Squared = .946 (Adjusted R Squared = .878)

Post Hoc Tests

WAKTU

Multiple Comparisons

Dependent Variable: BOD

Tukey HSD

(I) WAKTU	(J) WAKTU	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
.00	3.00	48.7871	11.2622	.054	-1.2790	98.8533
	6.00	81.4452	11.2622	.009	31.3791	131.5113
	9.00	56.8345	11.2622	.033	6.7683	106.9006
	12.00	43.0718	11.2622	.081	-6.9943	93.1379
3.00	.00	-48.7871	11.2622	.054	-98.8533	1.2790
	6.00	32.6581	11.2622	.177	-17.4081	82.7242
	9.00	8.0473	11.2622	.943	-42.0188	58.1134
	12.00	-5.7154	11.2622	.982	-55.7815	44.3508
6.00	.00	-81.4452	11.2622	.009	-131.5113	-31.3791
	3.00	-32.6581	11.2622	.177	-82.7242	17.4081
	9.00	-24.6107	11.2622	.338	-74.6769	25.4554
	12.00	-38.3734	11.2622	.114	-88.4395	11.6927
9.00	.00	-56.8345	11.2622	.033	-106.9006	-6.7683
	3.00	-8.0473	11.2622	.943	-58.1134	42.0188
	6.00	24.6107	11.2622	.338	-25.4554	74.6769
	12.00	-13.7627	11.2622	.744	-63.8288	36.3035
12.00	.00	-43.0718	11.2622	.081	-93.1379	6.9943
	3.00	5.7154	11.2622	.982	-44.3508	55.7815
	6.00	38.3734	11.2622	.114	-11.6927	88.4395
	9.00	13.7627	11.2622	.744	-36.3035	63.8288

Based on observed means.

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

Homogeneous Subsets

BOD

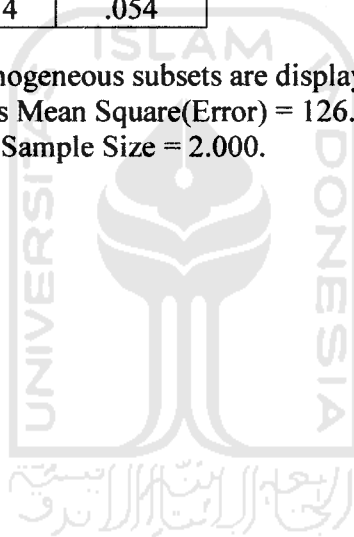
Tukey HSD

WAKTU	N	Subset	
		1	2
6.00	2	47.9871	
9.00	2	72.5978	
3.00	2	80.6452	80.6452
12.00	2	86.3605	86.3605
.00	2		129.4323
Sig.		.114	.054

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square(Error) = 126.836.

a Uses Harmonic Mean Sample Size = 2.000.

b Alpha = .05.



Univariate Analysis of Variance of E.Coli

Between-Subjects Factors

		N
MEDIA	1.00	5
	2.00	5
WAKTU	.00	2
	3.00	2
	6.00	2
	9.00	2
	12.00	2

Tests of Between-Subjects Effects

Dependent Variable: E.COLI

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4940628.500	5	988125.700	5.234	.067
Intercept	5710824.900	1	5710824.900	30.248	.005
MEDIA	335988.900	1	335988.900	1.780	.253
WAKTU	4604639.600	4	1151159.900	6.097	.054
Error	755205.600	4	188801.400		
Total	11406659.000	10			
Corrected Total	5695834.100	9			

a R Squared = .867 (Adjusted R Squared = .702)

Post Hoc Tests

WAKTU

Multiple Comparisons

Dependent Variable: E.COLI

Tukey HSD

(I) WAKTU	(J) WAKTU	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
.00	3.00	730.0000	434.5128	.528	-1201.6339	2661.6339
	6.00	1543.5000	434.5128	.101	-388.1339	3475.1339
	9.00	1693.0000	434.5128	.076	-238.6339	3624.6339
	12.00	1745.0000	434.5128	.069	-186.6339	3676.6339
3.00	.00	-730.0000	434.5128	.528	-2661.6339	1201.6339
	6.00	813.5000	434.5128	.448	-1118.1339	2745.1339
	9.00	963.0000	434.5128	.329	-968.6339	2894.6339
	12.00	1015.0000	434.5128	.295	-916.6339	2946.6339
6.00	.00	-1543.5000	434.5128	.101	-3475.1339	388.1339
	3.00	-813.5000	434.5128	.448	-2745.1339	1118.1339
	9.00	149.5000	434.5128	.996	-1782.1339	2081.1339
	12.00	201.5000	434.5128	.987	-1730.1339	2133.1339
9.00	.00	-1693.0000	434.5128	.076	-3624.6339	238.6339
	3.00	-963.0000	434.5128	.329	-2894.6339	968.6339
	6.00	-149.5000	434.5128	.996	-2081.1339	1782.1339
	12.00	52.0000	434.5128	1.000	-1879.6339	1983.6339
12.00	.00	-1745.0000	434.5128	.069	-3676.6339	186.6339
	3.00	-1015.0000	434.5128	.295	-2946.6339	916.6339
	6.00	-201.5000	434.5128	.987	-2133.1339	1730.1339
	9.00	-52.0000	434.5128	1.000	-1983.6339	1879.6339

Based on observed means.

Homogeneous Subsets

E.COLI
Tukey HSD

WAKTU	N	Subset
		1
12.00	2	153.0000
9.00	2	205.0000
6.00	2	354.5000
3.00	2	1168.0000
.00	2	1898.0000
Sig.		.069

Means for groups in homogeneous subsets are displayed. Based on Type III Sum of Squares The error term is Mean Square(Error) = 188801.400.

a Uses Harmonic Mean Sample Size = 2.000.

b Alpha = .05.



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DATA PENGUKURAN PERTUMBUHAN
TANAMAN

Hari ke	Nama Tanaman	Tinggi batang					Lebar daun					Panjang daun					Jumlah daun					Jumlah batang					Keterangan						
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5		Mati	Hidup				
		30	25.8	16.4	22.7	20.2	9	9	4.5	8	5	11.5	11.5	6	11.5	7	5	6	7	6	4	5	6	7	6	4				0	5		
0	Melati air	35	34	40	16.5	25	9	7	9.5	7	6	13	11	15	10	10	5	5	7	4	4	5	5	7	4	4	5	5	7	4	4	0	5
	Pickerel	81	80	75	81	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	7	4	6	9	0	5
	Futoi	70	72	66	70	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	7	4	6	9	0	5
	Cyperus	-	-	-	-	-	-	-	-	-	-	87	115	95	95	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	5
	Cattail	56	75	33	33	60	14	16	6.8	11	12.5	40	50	25	32	48	5	4	5	4	5	1	1	1	1	1	1	1	1	1	1	0	5
3	Melati air	30.3	26.5	17	23.5	21	9	9	4.7	8	5.7	11.5	11.5	6	11.5	7	4	3	7	7	3	4	3	7	7	3	4	3	7	7	3	0	5
	Pickerel	24	27.6	33.5	17.2	25.3	9.2	7	10	7	6	13.4	11	16	8	7	5	5	7	4	4	5	5	7	4	4	5	5	7	4	4	0	5
	Futoi	82	81	76	82	71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	7	4	6	6	0	5
	Cyperus	71	73	70	71	72	-	-	-	-	-	-	-	-	-	-	5	5	7	3	5	5	7	4	6	9	0	5					
	Cattail	-	-	-	-	-	-	-	-	-	-	110	122	118.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	5
Pisang air	56.5	76	34	33.5	61	15	17	7	11	13	41	50.5	27	32.5	48.5	5	4	5	4	5	1	1	1	1	1	1	1	1	1	1	0	5	
6	Melati air	31	27	18	24.3	21.7	9	9	4.8	8	5.7	12	11.7	6	11.5	7.3	6	3	3	8	8	6	3	3	8	8	6	3	3	8	8	0	5
	Pickerel	24.5	28.4	33.8	17.9	25.7	9.5	7	10	8	6.3	14	11	17.2	12	10	6	5	8	5	4	6	5	8	5	4	6	5	8	5	4	0	5
	Futoi	83	82	77	83	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	7	4	7	7	0	5
	Cyperus	72	74	71	72	74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	8	5	7	10	0	5
	Cattail	-	-	-	-	-	-	-	-	-	-	110	122.5	118.4	117.7	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	5
Pisang air	57	77	35	34	62	15	16	7.3	11	14.3	41.5	54	28	33	49	5	4	5	4	5	1	1	1	1	1	1	1	1	1	1	0	5	
9	Melati air	31.7	27.6	18.5	25.8	22.3	9	9	5	8	5.8	12.3	12	6.2	12.4	7.8	6	3	0	8	8	6	3	0	8	8	6	3	0	8	8	1	4
	Pickerel	25.7	29.1	34.2	18.6	26.4	9.4	7	9.7	8	6.6	14.7	11.8	17.5	9.2	9.3	6	5	8	5	4	6	5	8	5	4	6	5	8	5	4	0	5
	Futoi	84	83	77.5	84	72.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	8	5	8	7	0	5
	Cyperus	72.4	74.4	72	72.2	74.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	8	6	7	11	0	5
	Cattail	-	-	-	-	-	-	-	-	-	-	111	122.7	118.7	120.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	5
Pisang air	57	77	35	34	62	15	16	7.5	11	14.5	42	54	28	33	49	5	4	5	4	5	1	1	1	1	1	1	1	1	1	1	0	5	

Hari Ke	Nama Tanaman	Tinggi batang					Lebar daun					Panjang daun					Jumlah daun					Jumlah batang					Keterangan						
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5		Mati	Hidup				
12	Melati air	32	26	19.1	26	23.5	9	9	5.3	8	8.7	12	11.3	6.5	12.5	8	6	5	0	9	8	6	5	0	9	8	6	5	0	9	8	1	4
	Pickerel	26	29.5	35	19.3	27	9.7	7	10	5	7	15.3	12	18	9.5	9.5	6	5	8	5	5	6	5	8	5	5	6	5	8	5	5	0	5
	Futoi	85	83.5	74	85	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	8	5	8	11	0	5
	Cyperus	73.1	75	72.8	73	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	9	6	8	11	0	5
	Cattail	-	-	-	-	-	-	-	-	-	-	115	123	119	121	87	11	13	10	7	-	11	13	10	7	-	-	-	-	-	-	0	5
	Pisang air	57.1	77.2	35	34.1	62.3	14	17	7.4	11	14.5	41	50.5	28	33	51	5	4	5	4	5	5	4	5	4	5	1	1	1	1	1	0	5



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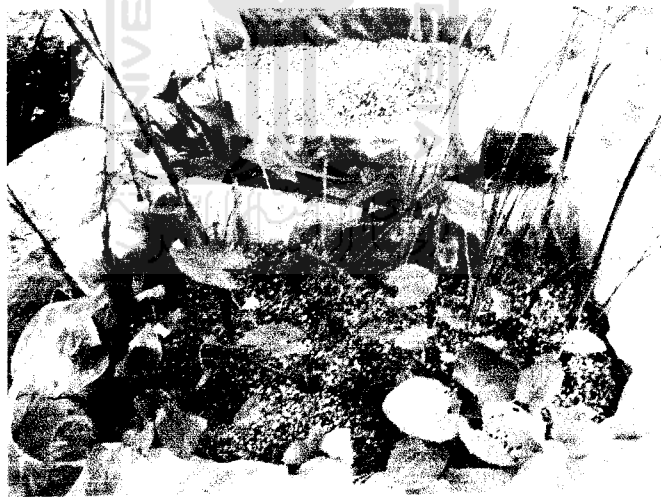


DOKUMENTASI

الجامعة الإسلامية
الابتناء والالتزام



Gambar Reaktor Uji dan Kontrol Hari ke-0



Gambar Reaktor Uji dan Kontrol Hari ke-3



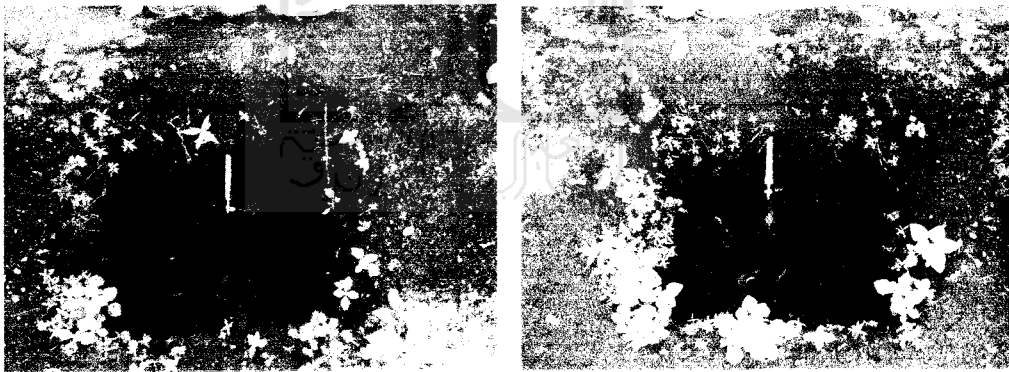
Gambar Reaktor Uji dan Kontrol Hari ke-6



Gambar Reaktor Uji dan Kontrol Hari ke-9



Gambar Reaktor Uji dan Kontrol Hari ke-12



Gambar Outlet reaktor uji dan kontrol

LAMPIRAN

KEPMENLH NO.112 TAHUN 2003



Lampiran
Keputusan Menteri Negara
Lingkungan Hidup,
Nomor : 112 Tahun 2003
Tanggal : 10 Juli 2003

BAKU MUTU AIR LIMBAH DOMESTIK

Parameter	Satuan	Kadar Maksimum
pH	-	6 - 9
BOD	mg/l	100
TSS	Mg/l	100
Minyak dan Lemak	mg/l	10

Menteri Negara
Lingkungan Hidup,

ttd

Nabiel Makarim, MPA, MSM.

**Salinan sesuai dengan aslinya
Deputi MENLH Bidang Kebijakan
Dan Kelembagaan Lingkungan Hidup,**

Hoetomo, MPA.