

LAMPIRAN

Lampiran 1. Hasil Uji AAS Konsentrasi Logam Fe Hari ke-0 dan Hari ke-7

Perlakuan / Kel	Ulang	Ke-0	Ke-7	Penurunan	% Removal	Rata-rata Penurunan
Kontrol / 10	1	4,6118	4,3187	0,2931	6.35%	0,16
	2	4,3164	4,3779	+0,0615	-1.42%	
	3	4,7557	4,4992	0,2565	5.39%	
mirip Pseudomonas						
5 mL / 1	1	4,4446	4,3694	0,0752	1.69%	0,07
	2	4,7133	4,3065	0,4068	8.63%	
	3	7,2999	7,5805	+0,2806	-3.84%	
10 mL / 2	1	4,7722	4,3395	0,4327	9.07%	0,57
	2	5,0186	4,2847	0,7339	14.62%	
	3	4,8575	4,3095	0,548	11.28%	
15 mL / 3	1	5,1367	4,4048	0,7319	14.25%	0,64
	2	5,171	4,9543	0,2167	4.19%	
	3	5,6431	4,6617	0,9814	17.39%	
mirip Bacillus						
5 mL / 4	1	4,6439	3,8636	0,7803	16.80%	0,77
	2	5,7442	5,2999	0,4443	7.73%	
	3	6,1195	5,0273	1,0922	17.85%	
10 mL / 5	1	4,7996	4,028	0,7716	16.07%	0,73
	2	5,6394	4,6914	0,948	16.81%	
	3	3,9649	3,5042	0,4607	11.62%	
15 mL / 6	1	4,3039	3,6813	0,6226	14.46%	0,46
	2	3,6715	3,4208	0,2507	6.83%	
	3	4,1696	3,6681	0,5015	12.03%	
mirip Enterobacter						
5 mL / 7	1	3,4675	3,0983	0,3692	10.65%	0,26
	2	3,6771	3,5889	0,0882	2.40%	
	3	4,3115	3,9778	0,3337	7.74%	
10 mL / 8	1	4,2344	3,8134	0,421	9.94%	0,36
	2	4,3114	3,9141	0,3973	9.21%	

	3	3,9684	3,6801	0,2883	7.26%	
	1	3,5539	2,9333	0,6206	17.46%	
15 mL / 9	2	3,2873	3,1111	0,1762	5.36%	0,39
	3	4,6359	4,2546	0,3813	8.22%	

Lampiran 2. Output Descriptive Statistic Penurunan Kadar Fe

Descriptives					
Kelompok			Statistic	Std. Error	
PenurunanFe	1	Mean		.067133	.1984763
		95% Confidence Interval for Mean	Lower Bound	-.786841	
			Upper Bound	.921108	
		5% Trimmed Mean		.	
		Median		.075200	
		Variance		.118	
		Std. Deviation		.3437710	
		Minimum		-.2806	
		Maximum		.4068	
		Range		.6874	
		Interquartile Range		.	
		Skewness		-.106	1.225
		Kurtosis		.	.
	2	Mean		.571533	.0877415
		95% Confidence Interval for Mean	Lower Bound	.194012	
			Upper Bound	.949055	
		5% Trimmed Mean		.	
		Median		.548000	
		Variance		.023	
		Std. Deviation		.1519728	
		Minimum		.4327	
		Maximum		.7339	
		Range		.3012	
		Interquartile Range		.	

Descriptives

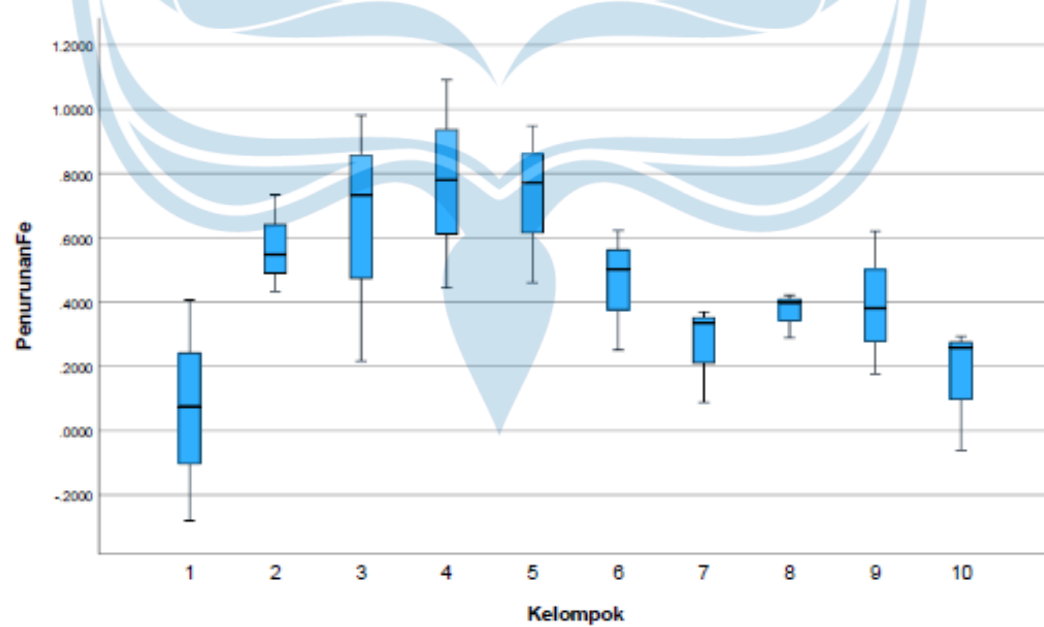
Kelompok		Statistic		Std. Error
3	Skewness	.680		1.225
	Kurtosis	-		-
	Mean	.643333		.2251478
	95% Confidence Interval for Mean	Lower Bound	-.325399	
		Upper Bound	1.612066	
	5% Trimmed Mean	-		
	Median	.731900		
	Variance	.152		
	Std. Deviation	.3899674		
	Minimum	.2167		
	Maximum	.9814		
	Range	.7647		
	Interquartile Range	-		
	Skewness	-.969		1.225
	Kurtosis	-		-
4	Mean	.772267		.1870757
	95% Confidence Interval for Mean	Lower Bound	-.032655	
		Upper Bound	1.577189	
	5% Trimmed Mean	-		
	Median	.780300		
	Variance	.105		
	Std. Deviation	.3240247		
	Minimum	.4443		
	Maximum	1.0922		
	Range	.6479		
	Interquartile Range	-		
	Skewness	-.111		1.225
	Kurtosis	-		-
5	Mean	.726767		.1424463
	95% Confidence Interval for Mean	Lower Bound	.113870	
		Upper Bound	1.339664	
	5% Trimmed Mean	-		
	Median	.771600		
	Variance	.061		
	Std. Deviation	.2467242		
	Minimum	.4607		
	Maximum	.9480		
	Range	.4873		
	Interquartile Range	-		
	Skewness	-.791		1.225
	Kurtosis	-		-
6	Mean	.458267		.1095129

Descriptives

Kelompok		Statistic	Std. Error
	95% Confidence Interval for Mean	Lower Bound	-.012929
		Upper Bound	.929463
	5% Trimmed Mean		.
	Median		.501500
	Variance		.036
	Std. Deviation		.1898820
	Minimum		.2507
	Maximum		.6226
	Range		.3719
	Interquartile Range		.
	Skewness	-.972	1.225
	Kurtosis	.	.
7	Mean		.263700
	95% Confidence Interval for Mean	Lower Bound	-.116424
		Upper Bound	.643824
	5% Trimmed Mean		.
	Median		.333700
	Variance		.023
	Std. Deviation		.1530204
	Minimum		.0882
	Maximum		.3692
	Range		.2810
	Interquartile Range		.
	Skewness	-1.628	1.225
	Kurtosis	.	.
8	Mean		.368867
	95% Confidence Interval for Mean	Lower Bound	.193059
		Upper Bound	.544674
	5% Trimmed Mean		.
	Median		.397300
	Variance		.005
	Std. Deviation		.0707719
	Minimum		.2883
	Maximum		.4210
	Range		.1327
	Interquartile Range		.
	Skewness	-1.516	1.225
	Kurtosis	.	.
9	Mean		.392700
	95% Confidence Interval for Mean	Lower Bound	-.159820
		Upper Bound	.945220
	5% Trimmed Mean		.
	Median		.381300

Descriptives

Kelompok		Statistic	Std. Error
	Variance	.049	
	Std. Deviation	.2224192	
	Minimum	.1762	
	Maximum	.6206	
	Range	.4444	
	Interquartile Range	.	
	Skewness	.230	1.225
	Kurtosis	.	.
	Mean	.162700	.1125968
	95% Confidence Interval for Mean	Lower Bound Upper Bound	-.321765 .647165
10	5% Trimmed Mean	.	
	Median	.256500	
	Variance	.038	
	Std. Deviation	.1950234	
	Minimum	-.0815	
	Maximum	.2931	
	Range	.3646	
	Interquartile Range	.	
	Skewness	-1.664	1.225
	Kurtosis	.	.



Lampiran 3. Output Two Way Anova

Tests of Between-Subjects Effects

Dependent Variable: PenurunanFe

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.518 ^a	9	.169	2.759	.028
Intercept	4.480	1	4.480	73.302	<.001
Bakteri	.464	2	.232	3.793	.040
Volume	.167	2	.084	1.367	.278
Bakteri * Volume	.626	4	.156	2.559	.070
Error	1.222	20	.061		
Total	8.620	30			
Corrected Total	2.740	29			

a. R Squared = .554 (Adjusted R Squared = .353)

Lampiran 4. Output Post Hoc - Duncan Test

PenurunanFeDuncan^{a,b}

Bakteri	N	Subset	
		1	2
Enterobacter	9	.341756	
Pseudomonas	9	.427333	.427333
Bacillus	9		.652433
Sig.		.481	.075

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = .064.

a. Uses Harmonic Mean Sample Size = 9.000.

b. Alpha = 0,05.

PenurunanFeDuncan^{a,b}

Kelompok	N	Subset		
		1	2	3
1	3	.067133		
7	3	.263700	.263700	
8	3	.368867	.368867	.368867
9	3	.392700	.392700	.392700
6	3	.458267	.458267	.458267
2	3		.571533	.571533
3	3		.643333	.643333
5	3		.726767	.726767
4	3			.772267
Sig.		.103	.062	.101

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = .064.

a. Uses Harmonic Mean Sample Size = 3.000.

b. Alpha = 0,05.

Lampiran 5. Output One Way Anova

ANOVA

PenurunanFe

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.518	9	.169	2.759	.028
Within Groups	1.222	20	.061		
Total	2.740	29			

ANOVA Effect Sizes^{a,b}

		Point Estimate	95% Confidence Interval	
			Lower	Upper
PenurunanFe	Eta-squared	.554	.000	.606
	Epsilon-squared	.353	-.450	.429
	Omega-squared Fixed-effect	.345	-.429	.421
	Omega-squared Random-effect	.055	-.034	.075

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

b. Negative but less biased estimates are retained, not rounded to zero.

Lampiran 6. Output Post Hoc – Dunnett Test

Post Hoc Tests

Multiple Comparisons

Dependent Variable: PenurunanFe

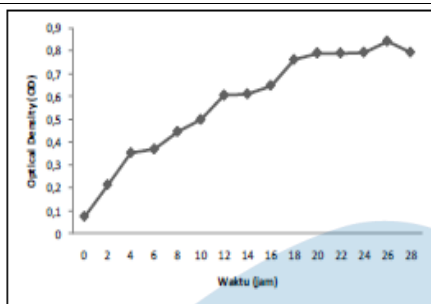
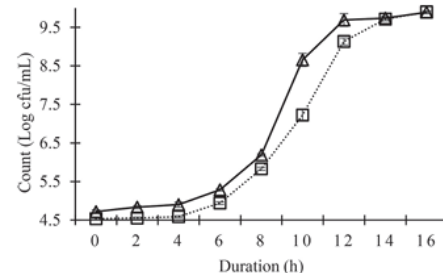
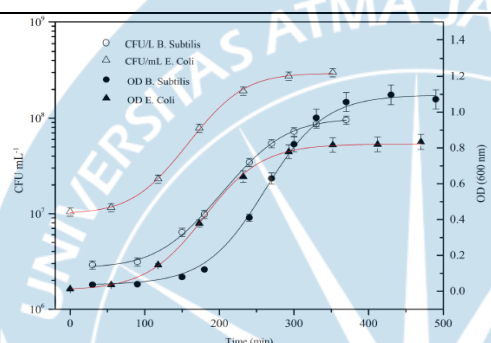
Dunnett t (2-sided)^a

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	10	-.0955667	.2018450	.999	-.690262	.499128
2	10	.4088333	.2018450	.280	-.185862	1.003528
3	10	.4806333	.2018450	.151	-.114062	1.075328
4	10	.6095667	.2018450	.043	.014872	1.204262
5	10	.5640667	.2018450	.068	-.030628	1.158762
6	10	.2955667	.2018450	.612	-.299128	.890262
7	10	.1010000	.2018450	.998	-.493695	.695695
8	10	.2061667	.2018450	.889	-.388528	.800862
9	10	.2300000	.2018450	.826	-.364695	.824695

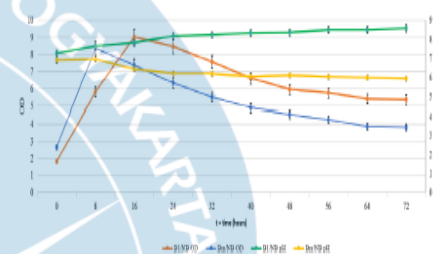
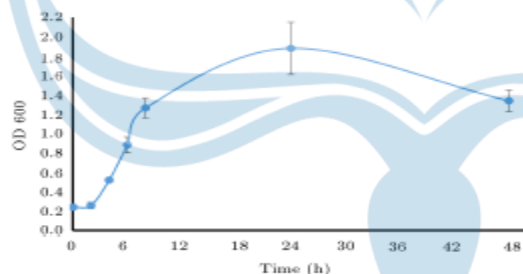
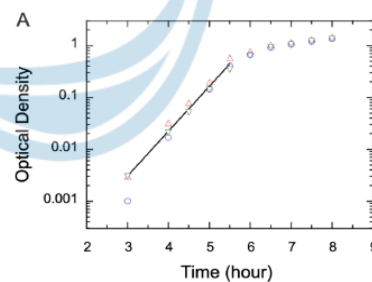
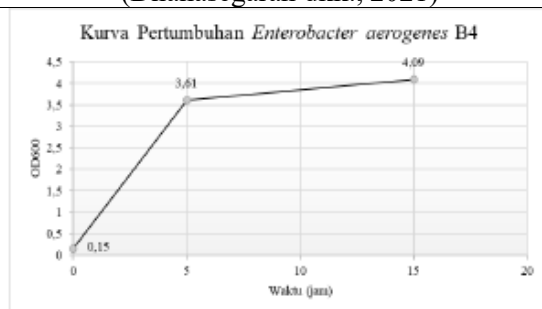
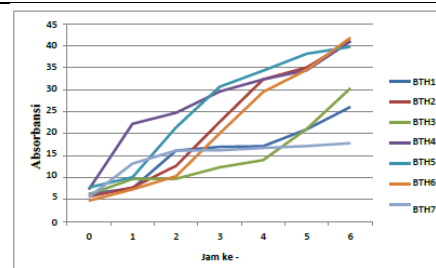
*. The mean difference is significant at the 0.05 level.

a. Dunnett t-tests treat one group as a control, and compare all other groups against it.

Lampiran 7. Kurva Pertumbuhan Bakteri

(a) *Bacillus subtilis* : 4 jam (Alamsjah dkk., 2023)(b) *Bacillus lincheniformis* : 6 jam (Awasti et al., 2019)(c) *Bacillus subtilis* : 2,5 jam (Massabò dkk., 2018)

In the NB medium (Figure 1), the strain *P. putida* (B1) reached the maximum growth after 16 h; then, a slow decrease was registered, measured in optical density.

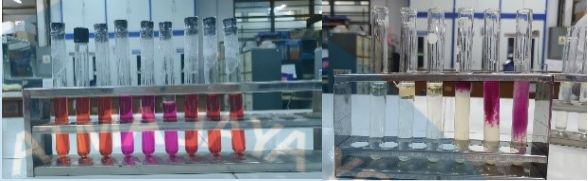
Figure 1. Growth of *P. putida* (B1) and *B. mycoides* (B2) strains in NB medium.(d) *Bacillus mycoides* : 8 jam
Pseudomonas putida : 16 jam (Vladu dkk., 2019)Figure 3. The growth curve of *P. aeruginosa* in Luria-Bertani broth (LB broth) at 37°C.(e) *Pseudomonas aeruginosa* : 2 – 24 jam (Dhanasegaran dkk., 2021)(f) *Enterobacter* : 3-5,5 jam (Pollack-Milgate dkk., 2024)(g) *Enterobacter aerogenes* : 5 jam

Gambar 2. Kurva pertumbuhan bakteri berdasarkan hasil OD

(h) *Enterobacter*

(Djojokusumo dkk., 2022)	BTH6 : 2 jam BTH7 : 1 jam (Irfan dkk., 2024)
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Lampiran 8. Hasil Uji Biokimia

Bakteri	Gambar
Inlet A	
Inlet B	
Inlet C	
Outlet A	
Outlet B	

Outlet C	
Outlet D	
Outlet E	