

BAB V KESIMPULAN DAN SARAN

KESIMPULAN

1. Pertumbuhan diatomae *Skeletonema costatum* paling efektif pada perlakuan B dengan penambahan silikat pada medium 10 mg/l karena mempunyai jumlah populasi tertinggi pada puncak populasi pada hari ketiga.
2. Perlakuan dengan dosis silikat lebih dari 10 mg/l kurang efektif bagi pertumbuhan diatomae *Skeletonema costatum*.
3. Hasil pengukuran kualitas air media masih menunjukkan kisaran yang layak bagi pertumbuhan diatomae *Skeletonema costatum*.

SARAN

Perlu diadakan penelitian yang menyangkut pengaruh penggunaan pupuk OST terhadap jenis plankton lain tanpa penambahan silikat pada medium.

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OBS	PERL	UL	HARI_1	HARI_2	HARI_3	HARI_4	HARI_5
1	K	1	1437500	1618055	1965722	1969722	2427778
2	K	2	1500000	1790722	2424778	2000000	2000000
3	K	3	1585814	1780556	2252370	2136574	1806000
4	A	1	1965722	2617592	3645833	2966500	2833333
5	A	2	1651389	1965722	3819870	2778666	2945000
6	A	3	1806000	1806000	4016667	3061833	2781759
7	B	1	1585814	3183333	4571296	3192555	3775925
8	B	2	1939815	3504166	4118055	3890740	3385185
9	B	3	2027778	3783796	4715278	3472222	2604166
10	C	1	1890962	3259259	3758333	2758333	2908444
11	C	2	2252370	3530518	4029166	3352777	3192592
12	C	3	2566666	3426851	3648611	3251815	3106481
13	D	1	1473777	3260611	3612037	2703333	2525444
14	D	2	1584222	3262926	4141203	3009722	2962036
15	D	3	2407370	3608333	3564166	2847222	2923148
16	E	1	1437500	3598148	3464166	2346296	2328704
17	E	2	2080981	3791663	3128888	2236074	1736111
18	E	3	2522963	3668981	3073148	2259259	1569444

OBS	PERL	UL	HARI_6	HARI_7	HARI_8	HARI_9	HARI_10
1	K	1	1986110	1958333	2000000	1981481	1500000
2	K	2	2000000	2245352	1833333	1790722	1474537
3	K	3	2354166	2032407	1986110	1750000	1694444
4	A	1	3594444	3480555	4030555	3458333	2815278
5	A	2	3550000	4040740	3905555	3498958	3598902
6	A	3	3573611	3549999	3838888	3855555	3123610
7	B	1	1604166	1624778	2194444	1418403	1694444
8	B	2	1861111	2097222	2318055	2618055	2194444
9	B	3	1680555	1986110	1423611	1555555	1495370
10	C	1	3270833	2655555	2157407	1790722	1562500
11	C	2	2597222	2736111	2101851	1652778	1571640
12	C	3	3144444	2680555	1972222	1722222	1944444
13	D	1	2534722	1958333	1833333	1981481	1439233
14	D	2	2354166	2136574	1697222	3348610	1855900
15	D	3	2317129	2328704	2083333	1416666	2205555
16	E	1	2131925	2621528	1436700	1915404	1319444
17	E	2	2293518	2242360	1680555	1194444	1722222
18	E	3	2032407	2197222	1277777	2931944	1916666

OBS	HARI	A	B	C	D	E	K
1	1	1807703.67	1851135.67	2236666.00	1821789.67	2013814.67	1507771.33
2	2	2129771.33	3490431.67	3405542.67	3377290.00	3686264.00	1729777.67
3	3	3827456.67	4468209.67	3812036.67	3772468.67	3222067.33	2214290.00
4	4	2935666.33	3518505.67	3120975.00	2853425.67	2280543.00	2035432.00
5	5	2853364.00	3255092.00	3069172.33	2803542.67	1878086.33	2077926.00
6	6	3572685.00	1715277.33	3004166.33	2402005.67	2152616.67	2113425.33
7	7	3690431.33	1902703.33	2690740.33	2141203.67	2353703.33	2078697.33
8	8	3924999.33	1978703.33	2077160.00	1871296.00	1465010.67	1939814.33
9	9	3604282.00	1864004.33	1721907.33	2248919.00	2013930.67	1840734.33
10	10	3179263.33	1794752.67	1692861.33	1833562.67	1652777.33	1556327.00

HARI=1

Analysis of Variance Procedure
Class Level Information

Class	Levels	Values
PERL	6	A B C D E K
UL	3	1 2 3

Number of observations in by group = 18
Analysis of Variance Procedure

Dependent Variable: ALGAE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
PERL	5	8.78513E+11	1.75703E+11	1.39	0.2949
Error	12	1.51495E+12	1.26246E+11		
Corrected Total	17	2.39347E+12			
R-Square		C.V.	Root MSE	ALGAE Mean	
	0.367046	18.96868	355311.3	1873146.83	

Duncan's Multiple Range Test for variable: ALGAE

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 12 MSE= 1.262E11

Number of Means	2	3	4	5	6
Critical Range	630889	660878	680921	691423	699167

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	PERL
A	2236666	3	C
A			
B A	2013815	3	E
B A			
B A	1851136	3	B
B A			
B A	1821790	3	D
B A			
B A	1807704	3	A
B			
B	1507771	3	K

HARI=2

Analysis of Variance Procedure
Class Level Information

Class	Levels	Values
PERL	6	A B C D E K
UL	3	1 2 3

Number of observations in by group = 18
Analysis of Variance Procedure

Dependent Variable: ALGAE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
PERL	5	1.01508E+13	2.03016E+12	34.52	0.0001
Error	12	7.05762E+11	5.88135E+10		
Corrected Total	17	1.08566E+13			
R-Square		C.V.	Root MSE	ALGAE Mean	
	0.934992	8.165911	242515.0	2969846.22	

Duncan's Multiple Range Test for variable: ALGAE

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 12 MSE= 5.881E10

Number of Means	2	3	4	5	6
Critical Range	430609	451077	464757	471926	477211

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	PERL
A	3686264	3	E
A			
A	3490432	3	B
A			
A	3405543	3	C
A			
A	3377290	3	D
B			
B	2129771	3	A
B			
B	1729778	3	K

HARI=3

Analysis of Variance Procedure
Class Level Information

Class	Levels	Values
PERL	6	A B C D E K
UL	3	1 2 3

Number of observations in by group = 18
Analysis of Variance Procedure

Dependent Variable: ALGAE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
PERL	5	8.78959E+12	1.75792E+12	28.43	0.0001
Error	12	7.41966E+11	6.18305E+10		
Corrected Total	17	9.53155E+12			
R-Square		C.V.	Root MSE	ALGAE Mean	
	0.922157	6.999003	248657.4	3552754.83	

Duncan's Multiple Range Test for variable: ALGAE

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 12 MSE= 6.183E10

Number of Means	2	3	4	5	6
Critical Range	441515	462502	476529	483878	489298

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	PERL
A	4468210	3	B
B	3827457	3	A
B	3812037	3	C
B	3772469	3	D
C	3222067	3	E
D	2214290	3	K

HARI=4

Analysis of Variance Procedure
Class Level Information

Class	Levels	Values
PERL	6	A B C D E K
UL	3	1 2 3

Number of observations in by group = 18
Analysis of Variance Procedure

Dependent Variable: ALGAE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
PERL	5	4.48327E+12	8.96653E+11	19.20	0.0001
Error	12	5.60374E+11	4.66979E+10		
Corrected Total	17	5.04364E+12			
R-Square		C.V.	Root MSE	ALGAE Mean	
	0.888895	7.743305	216096.9	2790757.94	

Duncan's Multiple Range Test for variable: ALGAE

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 12 MSE= 4.67E10

Number of Means	2	3	4	5	6
Critical Range	383701	401940	414130	420517	425226

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	PERL
A	3518506	3	B
B	3120975	3	C
B	2935666	3	A
B	2853426	3	D
C	2280543	3	E
C	2035432	3	K

HARI=5

Analysis of Variance Procedure
Class Level Information

Class	Levels	Values
PERL	6	A B C D E K
UL	3	1 2 3

Number of observations in by group = 18
Analysis of Variance Procedure

Dependent Variable: ALGAE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
PERL	5	4.58899E+12	9.17798E+11	7.83	0.0017
Error	12	1.40593E+12	1.17161E+11		
Corrected Total	17	5.99492E+12			
R-Square		C.V.	Root MSE	ALGAE Mean	
	0.765480	12.88638	342287.6	2656197.22	

Duncan's Multiple Range Test for variable: ALGAE

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 12 MSE= 1.172E11

Number of Means	2	3	4	5	6
Critical Range	607765	636654	655962	666080	673539

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	PERL
A	3255092	3	B
A			
A	3069172	3	C
A			
A	2853364	3	A
A			
A	2803543	3	D
B	2077926	3	K
B			
B	1878086	3	E

----- HARI=6 -----

Analysis of Variance Procedure
Class Level Information

Class	Levels	Values
PERL	6	A B C D E K
UL	3	1 2 3

Number of observations in by group = 18
Analysis of Variance Procedure

Dependent Variable: ALGAE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
PERL	5	6.90024E+12	1.38005E+12	37.55	0.0001
Error	12	4.41069E+11	3.67557E+10		
Corrected Total	17	7.34131E+12			
R-Square		C.V.	Root MSE	ALGAE Mean	
	0.939920	7.689129	191717.9	2493362.72	

Duncan's Multiple Range Test for variable: ALGAE

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 12 MSE= 3.676E10

Number of Means	2	3	4	5	6
Critical Range	340413	356595	367409	373076	377254

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	PERL
A	3572685	3	A
B	3004166	3	C
C	2402006	3	D
C	2152617	3	E
C	2113425	3	K
D	1715277	3	B

HARI=7

Analysis of Variance Procedure
Class Level Information

Class	Levels	Values
PERL	6	A B C D E K
UL	3	1 2 3

Number of observations in by group = 18
Analysis of Variance Procedure

Dependent Variable: ALGAE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
PERL	5	6.40356E+12	1.28071E+12	28.80	0.0001
Error	12	5.33560E+11	4.44633E+10		
Corrected Total	17	6.93712E+12			
R-Square		C.V.	Root MSE	ALGAE Mean	
	0.923086	8.515439	210863.3	2476246.56	

Duncan's Multiple Range Test for variable: ALGAE

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 12 MSE= 4.446E10

Number of Means	2	3	4	5	6
Critical Range	374408	392205	404100	410332	414928

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	PERL
A	3690431	3	A
B	2690740	3	C
B			
C	2353703	3	E
C			
C	2141204	3	D
C			
C	2078697	3	K
D			
D	1902703	3	B

HARI=8

Analysis of Variance Procedure
Class Level Information

Class	Levels	Values
PERL	6	A B C D E K
UL	3	1 2 3

Number of observations in by group = 18
Analysis of Variance Procedure

Dependent Variable: ALGAE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
PERL	5	1.12653E+13	2.25306E+12	39.59	0.0001
Error	12	6.82951E+11	5.69126E+10		
Corrected Total	17	1.19482E+13			
R-Square		C.V.	Root MSE	ALGAE Mean	
	0.942841	10.79719	238563.6	2209497.28	

Duncan's Multiple Range Test for variable: ALGAE

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 12 MSE= 5.691E10

Number of Means	2	3	4	5	6
Critical Range	423593	443728	457185	464236	469435

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	PERL
A	3924999	3	A
B	2077160	3	C
B	1978703	3	B
B	1939814	3	K
B	1871296	3	D
C	1465011	3	E

HARI=9

Analysis of Variance Procedure
Class Level Information

Class	Levels	Values
PERL	6	A B C D E K
UL	3	1 2 3

Number of observations in by group = 18
Analysis of Variance Procedure

Dependent Variable: ALGAE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
PERL	5	7.43428E+12	1.48686E+12	3.97	0.0234
Error	12	4.49539E+12	3.74616E+11		
Corrected Total	17	1.19297E+13			
R-Square		C.V.	Root MSE	ALGAE Mean	
	0.623176	27.62459	612058.5	2215629.61	

Duncan's Multiple Range Test for variable: ALGAE

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 12 MSE= 3.746E11

Number of Means	2	3	4	5	6
Critical Range	1086769	1138427	1172953	1191044	1204383

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	PERL
A	3604282	3	A
B	2248919	3	D
B	2013931	3	E
B	1864004	3	B
B	1840734	3	K
B	1721907	3	C

HARI=10

Analysis of Variance Procedure
Class Level Information

Class	Levels	Values
PERL	6	A B C D E K
UL	3	1 2 3

Number of observations in by group = 18
Analysis of Variance Procedure

Dependent Variable: ALGAE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
PERL	5	5.57452E+12	1.11490E+12	11.39	0.0003
Error	12	1.17499E+12	9.79158E+10		
Corrected Total	17	6.74951E+12			
R-Square		C.V.	Root MSE	ALGAE Mean	
0.825915		16.03384	312915.0	1951590.72	

Duncan's Multiple Range Test for variable: ALGAE

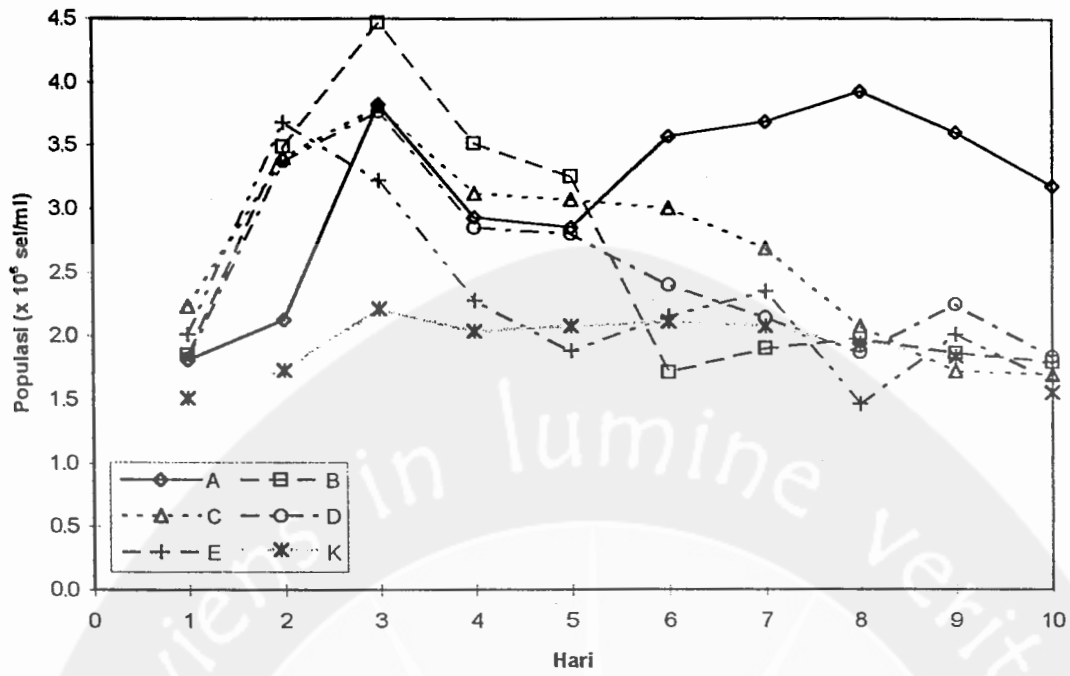
NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 12 MSE= 9.792E10

Number of Means	2	3	4	5	6
Critical Range	555611	582021	599672	608921	615741

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	PERL
A	3179263	3	A
B	1833563	3	D
B	1794753	3	B
B	1692861	3	C
B	1652777	3	E
B	1556327	3	K



Tabel 4. Hasil Pengukuran Oksigen (mg/l) pada hari kelima dan kesepuluh pengamatan

Hari	Ulangan	PERLAKUAN					
		K	A	B	C	D	E
5	1	5,4	5,6	5,4	5,5	5,5	5,4
	2	5,5	5,5	5,6	5,4	5,4	5,4
	3	5,4	5,4	5,6	5,5	5,6	5,5
	X	5,43	5,5	5,53	5,47	5,5	5,43
10	1	5,5	5,5	5,5	5,4	5,4	5,5
	2	5,4	5,4	5,4	5,6	5,5	5,5
	3	5,4	5,5	5,4	5,4	5,5	5,3
	X	5,43	5,47	5,43	5,47	5,46	5,43



Tabel 5 : Pemeriksaan Air Laut

Perlakuan	Hari	Ulangan	Amonia ($\text{NH}_3 - \text{N}$)	Nitrit ($\text{NO}_2 - \text{N}$)	Nitrat ($\text{NO}_3 - \text{N}$)
K	5	1	0,240	0,006	0,99
		2	0,250	0,005	0,95
		3	0,210	0,004	0,965
	X		0,235	0,005	0,968
A	5	1	0,235	0,006	3,05
		2	0,350	0,005	3,20
		3	0,365	0,007	2,70
	X		0,317	0,006	2,961
B	5	1	0,5	0,009	1,750
		2	0,495	0,015	1,940
		3	0,490	0,008	1,800
	X		0,495	0,010	1,83
C	5	1	0,450	0,006	2,65
		2	0,480	0,004	2,05
		3	0,495	0,005	1,85
	X		0,475	0,005	2,183
D	5	1	0,350	0,005	2,15
		2	0,450	0,004	2,20
		3	0,365	0,006	2,35
	X		0,388	0,005	2,233
E	5	1	0,280	0,003	2,45
		2	0,350	0,005	2,20
		3	0,365	0,004	2,35
	X		0,332	0,004	2,33
K	10	1	0,370	0,009	1,70
		2	0,340	0,007	1,55
		3	0,330	0,009	1,35
	X		0,350	0,009	1,52
A	10	1	1,05	0,150	3,70
		2	1,09	0,165	3,50
		3	0,80	0,140	3,55
	X		0,988	0,152	3,58
B	10	1	0,95	0,009	2,85
		2	0,65	0,010	2,60
		3	0,75	0,008	2,75
	X		0,783	0,009	2,73
C	10	1	0,99	0,010	3,50
		2	0,86	0,009	2,90
		3	0,55	0,009	3,40
	X		0,933	0,009	3,27
D	10	1	0,790	0,009	2,95
		2	0,850	0,007	2,70
		3	0,875	0,008	3,50
	X		0,833	0,008	3,05
E	10	1	1,02	0,010	3,50
		2	0,98	0,008	3,30
		3	0,75	0,007	2,90
	X		0,916	0,008	3,23