

Table 1: Statistical Analysis of Average Dissolved Oxygen Content Change of Algal Strains with Different Growing Parameters After 10 Days

Descriptive Information	Algal Strain with Growing Condition			
	<i>Nannochloropsis</i> sp. with NPK	<i>Nannochloropsis</i> sp. Control	<i>Chlorella</i> sp. with NPK	<i>Chlorella</i> sp. Control
Mean	4.25 mg/L	1.48 mg/L	1.11 mg/L	0.29 mg/L
Range	2.74 mg/L	2.16mg/L	2.89 mg/L	0.61 mg/L
Max	5.06 mg/L	2.23 mg/L	2.72 mg/L	0.72 mg/L
Min	2.32 mg/L	0.68 mg/L	-0.17 mg/L	0.11 mg/L
Variance	0.632157	0.161301	0.547891	0.024529
Standard Deviation	0.822989	0.401623	0.740196	0.156617
1 SD	3.4270- 5.0730	1.0784- 1.8816	.3698- 1.8502	.1334- .4466
2 SD	2.6040- 5.8960	.6768- 2.2832	-.3703- 2.5903	-.0232- .6032
3 SD	1.7810- 6.7190	.2751- 2.6849	-1.1105- 3.3306	-.1799- .7599
Number	15	10	15	10

Results of the ANOVA Test

Source of Variation	ANOVA					
	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	120.4819	<b>3</b>	40.1606	<b>90.5937</b>	<b>2.53E-19</b>	<b>4.238</b>
Within Groups	20.39200	<b>46</b>	0.44330			
Total	140.8739	49				

$\alpha=0.01$ , **p-value=  $2.53 \times 10^{-19}$** , calculated value of 90.5937 > 4.238

Table 2: Statistical Analysis of Average Turbidity Change of Algal Strains with Different Growing Parameters After 10 Days

Descriptive Information	Algal Strain with Growing Condition			
	<i>Nannochloropsis</i> sp.with NPK	<i>Nannochloropsis</i> sp. Control	<i>Chlorella</i> sp. with NPK	<i>Chlorella</i> sp. Control
Mean	0.174 AU	0.107 AU	0.147 AU	0.064 AU
Range	0.117 AU	0.030 AU	0.026 AU	0.082 AU
Max	0.229 AU	0.118AU	0.147 AU	0.109 AU
Min	0.112 AU	0.088 AU	0.121 AU	0.027 AU
Variance	0.000984	0.0000833	0.000413	0.00055
Standard Deviation	0.03137	0.00913	0.02032	0.0235
1 SD	.1426- .2054	.0979- .1161	.1267- .1673	.0405- .0875
2 SD	.1113- .2367	.0887- .1253	.1064- .1876	.0170- .1110
3 SD	.0799- .2681	.0796- .1344	.0860- .2080	-.0065- .1345
Number	15	10	15	10

Results of the ANOVA Test

Source of Variation	ANOVA					
	SS	df	MS	F	P-value	F crit
Between Groups	0.081189	<b>3</b>	0.027063	<b>45.6231</b>	<b>7.84E-14</b>	<b>4.238</b>
Within Groups	0.027286	<b>46</b>	5.931E-4			
Total	0.108475	49				

$\alpha=0.01$ , **p-value= 7.84\*10<sup>-14</sup>**, calculated value of 45.6231 > 4.238

Table 3: Statistical Analysis of Average Lipid Productivity of Algal Strains with Different Growing Parameters after 10 Days

Descriptive Information	Algal Strain with Growing Condition			
	<i>Nannochloropsis</i> sp.with NPK	<i>Nannochloropsis</i> sp. Control	<i>Chlorella</i> sp. with NPK	<i>Chlorella</i> sp. Control
Mean	0.487 g	0.897 g	0.202 g	0.278 g
Range	0.799 g	2.012 g	0.467 g	0.122 g
Max	0.808 g	2.236 g	0.472 g	0.327 g
Min	0.009 g	0.224 g	0.050 g	0.205 g
Variance	0.042318	0.324145	0.015365	0.001987
Standard Deviation	0.205714	0.569338	0.123955	0.044581
1 SD	.2813- .6927	.3277- 1.4663	.0780- .3260	.7354- .3226
2 SD	.0756- .8984	-.2417- 2.036	-.0459-.4499	.6908- .3672
3 SD	-.1301- 1.1041	-.8110- 2.605	-.1699- .5739	.6463- .4117
Number	15	10	15	10

  

Results of the ANOVA Test						
Source of Variation	ANOVA					
	SS	df	MS	F	P-value	F crit
Between Groups	3.236770	<b>3</b>	1.07892	<b>12.0270</b>	<b>6.15E-6</b>	<b>4.238</b>
Within Groups	4.126657	<b>46</b>	0.08971			
Total	7.363427	49				

$\alpha=0.01$ , **p-value=  $6.15 \times 10^{-6}$** , calculated value of 12.0270 > 4.238

Table 4: *Nannochloropsis sp.* with NPK Turbidity After 10 Days

Trial	Turbidity of Algal Culture (AU)		
	Initial Read	Final Result	Change in Turbidity
1	0.045	0.220	0.175
2	0.048	0.239	0.191
3	0.047	0.191	0.144
4	0.051	0.239	0.188
5	0.056	0.243	0.187
6	0.051	0.27	0.219
7	0.050	0.279	0.229
8	0.046	0.200	0.154
9	0.046	0.158	0.112
10	0.036	0.221	0.185
11	0.034	0.223	0.189
12	0.054	0.218	0.164
13	0.068	0.185	0.117
14	0.054	0.239	0.185
15	0.045	0.209	0.164
<b>Mean Absorption Units</b>	<b>0.049</b>	<b>0.222</b>	<b>0.174</b>

Table 5: *Chlorella sp.* with NPK Turbidity After 10 Days

Trial	Turbidity of Algal Culture (AU)		
	Initial Read	Final Result	Change in Turbidity
1	0.033	0.166	0.133
2	0.022	0.210	0.188
3	0.034	0.158	0.124
4	0.045	0.210	0.165
5	0.044	0.175	0.131
6	0.035	0.170	0.135
7	0.034	0.171	0.137
8	0.035	0.183	0.148
9	0.039	0.182	0.143
10	0.028	0.156	0.128
11	0.027	0.174	0.147
12	0.044	0.230	0.186
13	0.059	0.180	0.121
14	0.030	0.187	0.157
15	0.031	0.195	0.164
<b>Mean Absorption Units</b>	<b>0.036</b>	<b>0.190</b>	<b>0.147</b>

Table 6: *Nannochloropsis sp.* Control Turbidity After 10 Days

Control Number	Turbidity of Algal Culture (AU)		
	Initial Read	Final Result	Change in Turbidity
1	0.034	0.145	0.111
2	0.046	0.164	0.118
3	0.055	0.151	0.096
4	0.048	0.136	0.088
5	0.042	0.154	0.112
6	0.048	0.149	0.101
7	0.039	0.144	0.105
8	0.039	0.146	0.107
9	0.038	0.152	0.114
10	0.034	0.151	0.117
<b>Mean Absorption Units</b>	<b>0.042</b>	<b>0.149</b>	<b>0.107</b>

Table 7: *Chlorella sp.* Control Turbidity After 10 Days

Control Number	Turbidity of Algal Culture (AU)		
	Initial Read	Final Result	Change in Turbidity
1	0.036	0.111	0.075
2	0.028	0.137	0.109
3	0.043	0.070	0.027
4	0.045	0.129	0.084
5	0.044	0.118	0.074
6	0.046	0.087	0.041
7	0.046	0.081	0.035
8	0.040	0.113	0.073
9	0.040	0.099	0.059
10	0.045	0.112	0.067
<b>Mean Absorption Units</b>	<b>0.041</b>	<b>0.106</b>	<b>0.064</b>

Table 8: Dissolved Oxygen of *Nannochloropsis sp.* with NPK After 10 Days

Trial	Dissolved Oxygen Content of Algal Culture (mg/L)		
	Initial Read	Final Result	Change in DO
1	8.75	13.00	4.25
2	8.60	13.66	5.06
3	8.90	12.96	4.06
4	8.88	13.32	4.44
5	8.91	13.74	4.83
6	8.93	13.26	4.33
7	8.83	13.48	4.65
8	8.78	11.76	2.98
9	8.42	10.74	2.32
10	8.67	13.57	4.90
11	8.92	13.50	4.58
12	8.91	13.58	4.67
13	8.70	11.70	3.00
14	8.90	13.62	4.72
15	8.72	13.62	4.90
<b>Mean DO Content</b>	<b>8.79</b>	<b>13.03</b>	<b>4.25</b>



Table 9: Dissolved Oxygen of *Chlorella sp.* with NPK After 10 Days

Trial	Dissolved Oxygen Content of Algal Culture (mg/L)		
	Initial Read	Final Result	Change in DO
1	10.40	10.23	-0.17
2	9.30	12.02	2.72
3	9.32	9.94	0.62
4	9.32	10.81	1.49
5	9.40	9.85	0.45
6	9.40	11.11	1.71
7	9.43	10.57	1.14
8	9.34	11.31	1.97
9	9.22	10.32	1.10
10	9.46	10.00	0.54
11	9.27	10.94	1.67
12	9.35	10.57	1.22
13	9.24	9.45	0.21
14	9.32	9.75	0.43
15	9.17	10.66	1.49
<b>Mean DO Content</b>	<b>9.40</b>	<b>10.50</b>	<b>1.11</b>

Table 10: *Nannochloropsis sp.* Control Dissolved Oxygen After 10 Days

Control Number	Dissolved Oxygen of Algal Culture (mg/L)		
	Initial Read	Final Result	Change in DO
1	8.90	9.58	0.68
2	8.90	10.14	1.24
3	8.38	10.61	2.23
4	8.34	9.54	1.20
5	8.42	9.81	1.39
6	8.42	10.28	1.86
7	8.49	10.04	1.55
8	8.53	9.81	1.28
9	8.37	10.09	1.72
10	8.44	10.06	1.62
<b>Mean DO Content</b>	<b>8.52</b>	<b>10.00</b>	<b>1.48</b>

Table 11: *Chlorella sp.* Control Dissolved Oxygen After 10 Days

Control Number	Dissolved Oxygen of Algal Culture (mg/L)		
	Initial Read	Final Result	Change in DO
1	9.06	9.17	0.11
2	9.04	9.27	0.23
3	8.93	9.19	0.26
4	8.94	9.23	0.29
5	8.87	9.21	0.34
6	9.03	9.24	0.21
7	8.88	9.16	0.28
8	8.91	9.63	0.72
9	8.92	9.22	0.30
10	8.96	9.13	0.17
<b>Mean DO Content</b>	<b>8.95</b>	<b>9.25</b>	<b>0.29</b>

Table 12: Lipid Productivity of *Nannochloropsis sp.* with NPK After 10 Days

Trial	Lipid Productivity of Algal Culture (grams)		
	Initial Mass of Beaker	Final Mass of Beaker	Change in Mass
1	51.026	51.512	0.486
2	31.761	32.252	0.491
3	31.554	31.563	0.009
4	31.470	31.930	0.460
5	31.792	32.544	0.752
6	30.448	30.742	0.294
7	31.509	32.132	0.623
8	31.487	31.979	0.492
9	29.594	30.068	0.474
10	30.510	30.883	0.373
11	30.764	31.572	0.808
12	31.739	32.511	0.772
13	22.181	22.728	0.547
14	51.196	51.404	0.208
15	22.250	22.763	0.513
<b>Mean Mass</b>	<b>32.619</b>	<b>33.106</b>	<b>0.487</b>

Table 13: Lipid Productivity of *Chlorella sp.* NPK After 10 Days

Trial	Lipid Productivity of Algal Culture (grams)		
	Initial Mass of Beaker	Final Mass of Beaker	Change in Mass
1	30.610	30.738	0.128
2	21.742	21.822	0.080
3	53.257	53.704	0.447
4	49.598	49.889	0.291
5	22.069	22.262	0.193
6	22.325	22.484	0.159
7	54.096	54.568	0.472
8	49.715	50.008	0.293
9	32.244	32.310	0.066
10	22.188	22.294	0.106
11	66.377	66.427	0.050
12	53.228	53.464	0.236
13	53.763	53.885	0.122
14	53.626	53.831	0.205
15	52.763	52.939	0.176
<b>Mean Mass</b>	<b>42.507</b>	<b>42.708</b>	<b>0.202</b>

Table 14: Lipid Productivity of *Nannochloropsis sp.* Control After 10 Days

Control Number	Lipid Productivity of Algal Culture (grams)		
	Initial Mass of Beaker	Final Mass of Beaker	Change in Mass
1	30.155	32.391	2.236
2	29.504	30.489	0.985
3	61.543	61.767	0.224
4	70.592	70.896	0.304
5	63.365	63.972	0.607
6	62.915	63.430	0.515
7	59.978	61.454	1.476
8	61.991	62.654	0.663
9	62.049	62.996	0.947
10	60.986	62.000	1.014
<b>Mean Mass</b>	<b>56.308</b>	<b>57.205</b>	<b>0.897</b>

Table 15: Lipid Productivity of *Chlorella sp.* Control After 10 Days

Control Number	Lipid Productivity of Algal Culture (grams)		
	Initial Mass of Beaker	Final Mass of Beaker	Change in Mass
1	53.685	53.988	0.303
2	32.499	32.800	0.301
3	61.720	61.925	0.205
4	31.609	31.919	0.310
5	50.754	51.071	0.317
6	67.627	67.954	0.327
7	63.207	63.518	0.311
8	60.673	60.945	0.272
9	63.801	64.018	0.217
10	68.269	68.487	0.218
<b>Mean Mass</b>	<b>55.384</b>	<b>55.663</b>	<b>0.278</b>

Table 16: Statistical Analysis of Average Turbidity Change of *Chlorella sp.* with Different Salinity Concentrations After 7 Days

Descriptive Information	Algal Strain with Growing Condition				
	0 ppt (control)	7 ppt	18 ppt	30 ppt	45 ppt
Mean	0.223 AU	0.137 AU	0.035 AU	0.000 AU	-0.020 AU
Range	0.162 AU	0.033 AU	0.012 AU	0.000 AU	0.052 AU
Max	0.321 AU	0.154 AU	0.039 AU	0.000 AU	0.000 AU
Min	0.159 AU	0.121 AU	0.027 AU	0.000 AU	-0.052 AU
Variance	0.002309	0.000105	0.00001036	0	0.000236
Standard Deviation	0.048048	0.010259	0.0032187	0	0.015363
1 SD	.1750- .2710	.1267- .1473	.0318- .0382	.0000-.0000	-.0354- -.0046
2 SD	.1269- .3191	.1165- .1575	.0286- .0314	.0000-.0000	-.0507- .0107
3 SD	.0788- .3671	.1062- .1678	.0253- .0447	.0000-.0000	-.0661- .0261
Number	10	10	10	10	10

Results of the ANOVA Test

Source of Variation	ANOVA					
	SS	df	MS	F	P-value	F crit
Between Groups	0.420957	4	0.105239	<b>178.0214</b>	<b>5.78E-27</b>	<b>3.767427</b>
Within Groups	0.026602	45	0.000591			
Total	0.447559	49				

$\alpha=0.01$ , **p-value= 5.78\*10<sup>-27</sup>**, calculated value of 178.0124 > 3.7674