

Titel: Physiologic manipulation of microalgae-bacteria consortia: chances and limitations.

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Tab. S1: Read statistics of metagenomic sequencing analysis.

<i>Sample Name</i>	<i>Total Raw Reads</i>	<i>Total HQ Reads</i>	<i>HQ Bases (Q30)</i>	<i>GC Content</i>	<i>Mean Read Length (bp)</i>
<i>Antibiotics - 0.1 mL - 48 h</i>	27.69 M	27.13 M	94.60%	60.90%	148
<i>Antibiotics - 100 mL - 48 h</i>	26.55 M	26.13 M	96.56%	57.76%	146
<i>Antibiotics - 10 mL - 48 h</i>	30.06 M	29.6 M	96.09%	57.46%	147
<i>Antibiotics - 1 mL - 48 h</i>	21.98 M	21.7 M	92.61%	61.67%	149
<i>Antibiotics - 0 mL - 48 h</i>	20.29 M	19.92 M	96.10%	60.04%	147
<i>Antibiotics/pH value/Salinity - 0 mL/pH 7/ 0 PSU - 0 h</i>	21.69 M	21.23 M	96.27%	59.19%	145
<i>Light Intensities - 1500 μMol m⁻² s⁻¹ - 48 h</i>	24.34 M	23.98 M	96.35%	60.57%	147
<i>Light Intensities - 375 μMol m⁻² s⁻¹ - 48 h</i>	22.74 M	22.31 M	95.86%	60.27%	146
<i>Light Intensities - 750 μMol m⁻² s⁻¹ - 48 h</i>	25.39 M	24.97 M	96.06%	59.57%	148
<i>Light Intensities - 1050 μMol m⁻² s⁻¹ - 48 h</i>	21.79 M	21.42 M	96.20%	59.18%	147
<i>Light Intensities - 100 μMol m⁻² s⁻¹ - 48 h</i>	27.61 M	27.12 M	96.12%	59.87%	147
<i>pH value - pH 12 - 48 h</i>	22.93 M	22.57 M	96.33%	60.21%	147
<i>pH value - pH 6 - 48 h</i>	34.25 M	33.67 M	96.10%	56.48%	148
<i>pH value - pH 7 - 48 h</i>	22.99 M	22.75 M	93.93%	57.97%	148
<i>pH value - pH 3 - 48 h</i>	28.74 M	28.19 M	94.91%	58.88%	149
<i>pH value - pH 9 - 48 h</i>	19.86 M	19.53 M	91.98%	55.75%	149

<i>Salinity - 0.75 PSU - 48 h</i>	25.26 M	24.98 M	93.33%	59.71%	149
<i>Salinity - 15 PSU - 48 h</i>	24.78 M	24.4 M	96.46%	60.15%	147
<i>Salinity - 1.5 PSU - 48 h</i>	26.34 M	25.82 M	96.31%	59.62%	145
<i>Salinity - 35 PSU - 48 h</i>	34.09 M	33.6 M	96.83%	59.11%	146
<i>Salinity - 0 PSU - 48 h</i>	24.36 M	23.98 M	96.14%	59.75%	148
<i>Temperature - 15 °C - 48 h</i>	25.87 M	25.47 M	96.40%	58.21%	147
<i>Temperature - 35 °C - 48 h</i>	22.18 M	21.81 M	96.04%	61.26%	147
<i>Temperature - 45 °C - 48 h</i>	23.42 M	23.01 M	96.30%	60.32%	147
<i>Temperature - 5 °C - 48 h</i>	25.99 M	25.54 M	96.39%	59.55%	147
<i>Temperature - 25 °C - 0 h</i>	24.81 M	24.35 M	95.77%	61.47%	148
<i>Temperature - 25 °C - 48 h</i>	31.25 M	30.77 M	96.36%	60.54%	147

Tab. S2: Taxonomic profiling metrics of metagenomic sequencing analysis.

<i>Sample Name</i>	<i>Reads</i>	<i>Classified Reads</i>	<i>Classified Reads %</i>	<i>Unclassified Reads</i>	<i>Unclassified Reads %</i>
<i>Antibiotics - 0.1 mL - 48 h</i>	27,127,608	14,914,172	54.98 %	12,213,436	45.02 %
<i>Antibiotics - 100 mL - 48 h</i>	26,129,224	12,749,655	48.79 %	13,379,569	51.21 %
<i>Antibiotics - 10 mL - 48 h</i>	29,601,666	16,105,654	54.41 %	13,496,012	45.59 %
<i>Antibiotics - 1 mL - 48 h</i>	21,700,840	12,394,026	57.11 %	9,306,814	42.89 %
<i>Antibiotics - 0 mL - 48 h</i>	19,923,344	9,659,397	48.48 %	10,263,947	51.52 %
<i>Antibiotics/pH value/Salinity - 0 mL/pH 7/ 0 PSU - 0 h</i>	21,232,556	8,976,423	42.28 %	12,256,133	57.72 %
<i>Light Intensities - 1500 μMol m⁻² s⁻¹ - 48 h</i>	23,978,120	12,705,655	52.99 %	11,272,465	47.01 %
<i>Light Intensities - 375 μMol m⁻² s⁻¹ - 48 h</i>	22,306,030	12,480,557	55.95 %	9,825,473	44.05 %
<i>Light Intensities - 750 μMol m⁻² s⁻¹ - 48 h</i>	24,973,038	13,306,009	53.28 %	11,667,029	46.72 %
<i>Light Intensities - 1050 μMol m⁻² s⁻¹ - 48 h</i>	21,423,084	12,001,430	56.02 %	9,421,654	43.98 %
<i>Light Intensities - 100 μMol m⁻² s⁻¹ - 48 h</i>	27,121,910	13,869,975	51.14 %	13,251,935	48.86 %
<i>pH value - pH 12 - 48 h</i>	22,568,556	12,407,917	54.98 %	10,160,639	45.02 %
<i>pH value - pH 6 - 48 h</i>	33,672,486	6,675,964	19.83 %	26,996,522	80.17 %
<i>pH value - pH 7 - 48 h</i>	22,750,910	12,346,853	54.27 %	10,404,057	45.73 %
<i>pH value - pH 3 - 48 h</i>	28,194,916	15,050,198	53.38 %	13,144,718	46.62 %
<i>pH value - pH 9 - 48 h</i>	19,529,100	9,133,281	46.77 %	10,395,819	53.23 %

<i>Salinity - 0.75 PSU - 48 h</i>	24,984,888	17,131,227	68.57 %	7,853,661	31.43 %
<i>Salinity - 15 PSU - 48 h</i>	24,399,114	12,959,451	53.11 %	11,439,663	46.89 %
<i>Salinity - 1.5 PSU - 48 h</i>	25,817,806	14,794,529	57.30 %	11,023,277	42.70 %
<i>Salinity - 35 PSU - 48 h</i>	33,598,794	17,556,785	52.25 %	16,042,009	47.75 %
<i>Salinity - 0 PSU - 48 h</i>	23,975,702	12,864,142	53.65 %	11,111,560	46.35 %
<i>Temperature - 15 °C - 48 h</i>	25,473,750	13,424,599	52.70 %	12,049,151	47.30 %
<i>Temperature - 35 °C - 48 h</i>	21,808,934	12,446,108	57.07 %	9,362,826	42.93 %
<i>Temperature - 45 °C - 48 h</i>	23,013,072	11,368,603	49.40 %	11,644,469	50.60 %
<i>Temperature - 5 °C - 48 h</i>	25,542,390	12,906,196	50.53 %	12,636,194	49.47 %
<i>Temperature - 25 °C - 0 h</i>	24,347,868	14,358,715	58.97 %	9,989,153	41.03 %
<i>Temperature - 25 °C - 48 h</i>	30,767,396	15,563,831	50.59 %	15,203,565	49.41 %

Tab. S3: Reads assigned to kingdoms of metagenomic sequencing analysis.

<i>Sample Name</i>	<i>Archaea</i>	<i>Bacteria</i>	<i>Eukaryota</i>	<i>Fungi</i>	<i>Viruses</i>
<i>Antibiotics - 0.1 mL - 48 h</i>	292 (0.00 %)	14,027,945 (94.06 %)	862,620 (5.78 %)	1,464 (0.01 %)	125 (0.00 %)
<i>Antibiotics - 100 mL - 48 h</i>	188 (0.00 %)	11,880,844 (93.19 %)	630,954 (4.95 %)	213,768 (1.68 %)	187 (0.00 %)
<i>Antibiotics - 10 mL - 48 h</i>	226 (0.00 %)	15,250,029 (94.69 %)	677,428 (4.21 %)	161,390 (1.00 %)	99 (0.00 %)
<i>Antibiotics - 1 mL - 48 h</i>	244 (0.00 %)	12,181,040 (98.28 %)	199,335 (1.61 %)	846 (0.01 %)	153 (0.00 %)
<i>Antibiotics - 0 mL - 48 h</i>	204 (0.00 %)	9,142,619 (94.65 %)	502,229 (5.20 %)	1,032 (0.01 %)	93 (0.00 %)
<i>Antibiotics/pH value/Salinity - 0 mL/pH 7/ 0 PSU - 0 h</i>	202 (0.00 %)	8,384,161 (93.40 %)	573,785 (6.39 %)	1,666 (0.02 %)	89 (0.00 %)
<i>Light Intensities - 1500 μMol m⁻² s⁻¹ - 48 h</i>	226 (0.00 %)	12,177,241 (95.84 %)	511,988 (4.03 %)	1,056 (0.01 %)	142 (0.00 %)
<i>Light Intensities - 375 μMol m⁻² s⁻¹ - 48 h</i>	172 (0.00 %)	12,013,628 (96.26 %)	451,992 (3.62 %)	886 (0.01 %)	121 (0.00 %)
<i>Light Intensities - 750 μMol m⁻² s⁻¹ - 48 h</i>	214 (0.00 %)	12,668,462 (95.21 %)	621,007 (4.67 %)	950 (0.01 %)	114 (0.00 %)
<i>Light Intensities - 1050 μMol m⁻² s⁻¹ - 48 h</i>	180 (0.00 %)	11,535,937 (96.12 %)	451,626 (3.76 %)	816 (0.01 %)	115 (0.00 %)
<i>Light Intensities - 100 μMol m⁻² s⁻¹ - 48 h</i>	224 (0.00 %)	11,892,173 (95.84 %)	501,164 (4.04 %)	908 (0.01 %)	126 (0.00 %)
<i>pH value - pH 12 - 48 h</i>	68 (0.00 %)	4,774,407 (71.52 %)	1,882,268 (28.19 %)	3,910 (0.06 %)	163 (0.00 %)
<i>pH value - pH 6 - 48 h</i>	135 (0.00 %)	11,914,700 (96.50 %)	418,406 (3.39 %)	1,140 (0.01 %)	186 (0.00 %)
<i>pH value - pH 7 - 48 h</i>	220 (0.00 %)	14,124,883 (93.85 %)	899,973 (5.98 %)	1,968 (0.01 %)	352 (0.00 %)
<i>pH value - pH 3 - 48 h</i>	83 (0.00 %)	7,547,558 (82.64 %)	702,366 (7.69 %)	873,064 (9.56 %)	46 (0.00 %)
<i>pH value - pH 9 - 48 h</i>	187 (0.00 %)	16,846,786 (98.34 %)	272,249 (1.59 %)	548 (0.00 %)	271 (0.00 %)

<i>Salinity - 0.75 PSU - 48 h</i>	248 (0.00 %)	12,546,040 (96.81 %)	397,558 (3.07 %)	902 (0.01 %)	133 (0.00 %)
<i>Salinity - 15 PSU - 48 h</i>	246 (0.00 %)	14,378,215 (97.19 %)	402,413 (2.72 %)	1,332 (0.01 %)	141 (0.00 %)
<i>Salinity - 1.5 PSU - 48 h</i>	268 (0.00 %)	16,973,425 (96.68 %)	562,488 (3.20 %)	1,464 (0.01 %)	226 (0.00 %)
<i>Salinity - 35 PSU - 48 h</i>	184 (0.00 %)	12,427,456 (96.61 %)	419,298 (3.26 %)	1,508 (0.01 %)	166 (0.00 %)
<i>Salinity - 0 PSU - 48 h</i>	256 (0.00 %)	12,917,603 (96.22 %)	490,449 (3.65 %)	1,092 (0.01 %)	93 (0.00 %)
<i>Temperature - 15 °C - 48 h</i>	156 (0.00 %)	11,823,978 (95.00 %)	605,625 (4.87 %)	914 (0.01 %)	111 (0.00 %)
<i>Temperature - 35 °C - 48 h</i>	270 (0.00 %)	10,789,266 (94.90 %)	558,025 (4.91 %)	3,860 (0.03 %)	188 (0.00 %)
<i>Temperature - 45 °C - 48 h</i>	232 (0.00 %)	12,309,450 (95.38 %)	580,179 (4.50 %)	1,328 (0.01 %)	147 (0.00 %)
<i>Temperature - 5 °C - 48 h</i>	144 (0.00 %)	13,710,020 (95.48 %)	630,800 (4.39 %)	1,004 (0.01 %)	79 (0.00 %)
<i>Temperature - 25 °C - 0 h</i>	236 (0.00 %)	14,822,253 (95.24 %)	720,728 (4.63 %)	1,452 (0.01 %)	174 (0.00 %)
<i>Temperature - 25 °C - 48 h</i>	278 (0.00 %)	13,108,644 (94.73 %)	710,843 (5.14 %)	1,264 (0.01 %)	132 (0.00 %)

Tab. S4: Two-Way ANOVA results of antibiotic treatments

Measurement	Factor	$F_{4,2,8}$	PR(>F)
Zeta Potential	Treatment	0.40772939	0.8016
	Time	6.2977553	0.0052
	Treatment : Time	0.46771997	0.8690
Recovery Rate	Treatment	10.4977672	< 0.0001
	Time	8.0650109	0.0016
	Treatment : Time	4.79522004	0.0007
Sinking Velocity	Treatment	0.39716077	0.8091
	Time	24.2321197	< 0.0001
	Treatment : Time	0.27515321	0.9692
Particle Size	Treatment	1.21927154	0.3234
	Time	14.9339787	< 0.0001
	Treatment : Time	0.31786756	0.9530

Tab. S5: Two-Way ANOVA results of light intensity treatments

Measurement	Factor	$F_{4,2,8}$	PR(>F)
Zeta Potential	Treatment	0.31083506	0.8684
	Time	0.16619845	0.8477
	Treatment : Time	0.61231796	0.7604
Recovery Rate	Treatment	0.73822489	0.5733
	Time	7.38384413	0.0025
	Treatment : Time	0.3253669	0.9497
Sinking Velocity	Treatment	1.04589719	0.4002
	Time	25.6601369	< 0.0001
	Treatment : Time	0.54796065	0.8109
Particle Size	Treatment	1.93841524	0.4002
	Time	41.6794664	< 0.0001
	Treatment : Time	0.55336884	0.8109

Tab. S6: Two-Way ANOVA results of pH value treatments

Measurement	Factor	$F_{4,2,8}$	PR(>F)
Zeta Potential	Treatment	7.41414066	0.0003
	Time	10.2436096	0.0004
	Treatment : Time	1.87894449	0.1009
Recovery Rate	Treatment	15.7937986	< 0.0001
	Time	15.7818102	< 0.0001
	Treatment : Time	6.15886709	0.00001
Sinking Velocity	Treatment	2.49648008	0.0638
	Time	25.5082546	< 0.0001
	Treatment : Time	1.16963388	0.3491
Particle Size	Treatment	0.55389553	0.6977
	Time	15.844421	< 0.0001
	Treatment : Time	0.25193243	0.9764

Tab. S7: Two-Way ANOVA results of salinity treatments

Measurement	Factor	$F_{4,2,8}$	PR(>F)
Zeta Potential	Treatment	0.20712091	0.9325
	Time	7.02674074	0.0031
	Treatment : Time	0.22308625	0.9839
Recovery Rate	Treatment	0.50381009	0.7332
	Time	2.00927109	0.1517
	Treatment : Time	0.89344179	0.5340
Sinking Velocity	Treatment	0.83769116	0.5121
	Time	26.9812071	< 0.0001
	Treatment : Time	0.31169546	0.9555
Particle Size	Treatment	1.16707347	0.3450
	Time	25.415152	< 0.0001
	Treatment : Time	0.40661916	0.9078

Tab. S8: Two-Way ANOVA results of temperature treatments

Measurement	Factor	$F_{4,2,8}$	PR(>F)
Zeta Potential	Treatment	0.12367335	0.9728
	Time	2.53629043	0.0960
	Treatment : Time	0.42749116	0.8952
Recovery Rate	Treatment	5.71882015	0.0015
	Time	19.0826239	< 0.0001
	Treatment : Time	1.66837957	0.1475
Sinking Velocity	Treatment	7.98373282	0.0002
	Time	135.624208	< 0.0001
	Treatment : Time	2.63130488	0.0259
Particle Size	Treatment	2.39188539	0.0728
	Time	71.220228	< 0.0001
	Treatment : Time	0.76496171	0.6356