

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>HQ Reads %</i>
<i>MBC - Unialgal Comparison</i>	26.57 M	26.13 M	93.76%	62.92%	149	98.32%
<i>Sewage - 1</i>	29.98 M	29.55 M	93.51%	55.32%	148	98.59%
<i>Sewage - 2</i>	33.27 M	32.81 M	94.03%	53.73%	147	98.64%
<i>Sewage - 3</i>	35.29 M	34.57 M	92.29%	55.89%	148	97.96%
<i>Artificial Medium - 1</i>	29.36 M	28.87 M	92.17%	60.06%	148	98.32%
<i>Artificial Medium - 2</i>	38.18 M	37.77 M	93.81%	60.65%	149	98.92%
<i>Artificial Medium - 3</i>	32.49 M	32 M	93.38%	59.79%	149	98.51%
<i>Fish Sewage - 1</i>	30.38 M	30.03 M	93.29%	59.83%	149	98.85%
<i>Fish Sewage - 2</i>	29.01 M	28.61 M	93.14%	59.22%	149	98.62%
<i>Fish Sewage - 3</i>	27.17 M	26.85 M	93.37%	59.79%	149	98.82%

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>MBC - Unialgal Comparison</i>	26,126,864	11,102,805	42.50 %	15,024,059	57.50 %
<i>Sewage - 1</i>	29,554,250	7,956,944	26.92 %	21,597,306	73.08 %
<i>Sewage - 2</i>	32,814,032	9,645,136	29.39 %	23,168,896	70.61 %
<i>Sewage - 3</i>	34,567,638	8,175,078	23.65 %	26,392,560	76.35 %
<i>Artificial Medium - 1</i>	28,865,054	11,973,904	41.48 %	16,891,150	58.52 %
<i>Artificial Medium - 2</i>	37,767,652	17,101,292	45.28 %	20,666,360	54.72 %
<i>Artificial Medium - 3</i>	32,004,872	13,361,205	41.75 %	18,643,667	58.25 %
<i>Fish Sewage - 1</i>	30,026,710	5,944,559	19.80 %	24,082,151	80.20 %
<i>Fish Sewage - 2</i>	28,606,606	5,411,295	18.92 %	23,195,311	81.08 %
<i>Fish Sewage - 3</i>	26,847,000	5,235,250	19.50 %	21,611,750	80.50 %

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>MBC - Unialgal Comparison</i>	195 (0.00 %)	10,145,595 (91.38 %)	920,561 (8.29 %)	1,598 (0.01 %)	338 (0.00 %)
<i>Sewage - 1</i>	674 (0.01 %)	4,073,382 (51.19 %)	3,854,457 (48.44 %)	1,774 (0.02 %)	345 (0.00 %)
<i>Sewage - 2</i>	828 (0.01 %)	3,599,665 (37.32 %)	6,020,421 (62.42 %)	1,736 (0.02 %)	328 (0.00 %)
<i>Sewage - 3</i>	894 (0.01 %)	4,609,053 (56.38 %)	3,531,753 (43.20 %)	2,516 (0.03 %)	746 (0.01 %)
<i>Artificial Medium - 1</i>	232 (0.00 %)	11,632,110 (97.15 %)	322,094 (2.69 %)	1,508 (0.01 %)	110 (0.00 %)
<i>Artificial Medium - 2</i>	221 (0.00 %)	16,688,380 (97.59 %)	387,097 (2.26 %)	1,778 (0.01 %)	114 (0.00 %)
<i>Artificial Medium - 3</i>	206 (0.00 %)	12,979,931 (97.15 %)	358,342 (2.68 %)	1,510 (0.01 %)	218 (0.00 %)
<i>Fish Sewage - 1</i>	392 (0.01 %)	5,444,889 (91.59 %)	468,818 (7.89 %)	2,034 (0.03 %)	336 (0.01 %)
<i>Fish Sewage - 2</i>	368 (0.01 %)	4,916,794 (90.86 %)	466,485 (8.62 %)	2,014 (0.04 %)	278 (0.01 %)
<i>Fish Sewage - 3</i>	328 (0.01 %)	4,809,885 (91.87 %)	398,229 (7.61 %)	1,828 (0.03 %)	200 (0.00 %)