

# Supplementary Information

## Selective DNA and Protein Isolation from Marine Macrophyte Surfaces

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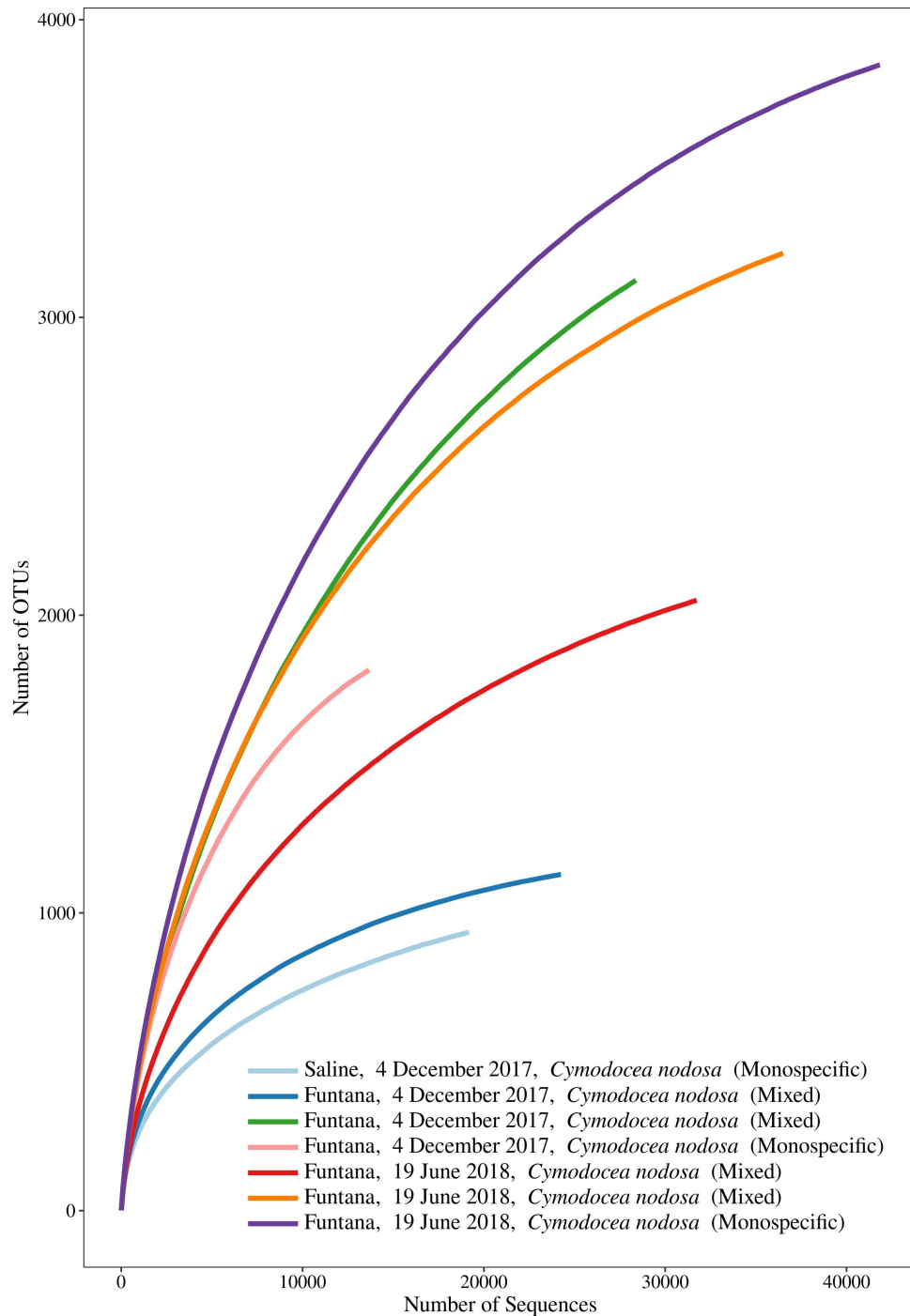
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Running title: DNA and protein isolation from macrophyte surfaces

## Supplementary figure



**Fig. S1.** Rarefaction curves of bacterial and archaeal communities from the surfaces of two marine macrophytes (*C. nodosa* and *C. cylindracea*) sampled in the Bay of Saline and the Bay of Funtana (mixed and monospecific settlements) in two contrasting seasons (4 December 2017 and 19 June 2018).

## Supplementary tables

**Table S1.** Sample ID, sampling station, community type, sampling date, number of sequences and number of OTUs of each sample. The number of sequences and OTUs was calculated after exclusion of sequences without known relatives (no relative sequences) and eukaryotic, chloroplast and mitochondrial sequences.

| Sample ID | Station | Community Type                             | Date            | No. of Sequences | No. of OTUs |
|-----------|---------|--|-----------------|------------------|-------------|
| 40        | Saline  | <i>Cymodocea nodosa</i> (Monospecific)     | 4 December 2017 | 19,176           | 935         |
| 41        | Funtana | <i>Cymodocea nodosa</i> (Mixed)            | 4 December 2017 | 24,252           | 1,129       |
| 42        | Funtana | <i>Caulerpa cylindracea</i> (Mixed)        | 4 December 2017 | 28,385           | 3,125       |
| 43        | Funtana | <i>Caulerpa cylindracea</i> (Monospecific) | 4 December 2017 | 13,667           | 1,816       |
| 61        | Funtana | <i>Cymodocea nodosa</i> (Mixed)            | 19 June 2018    | 31,736           | 2,050       |
| 62        | Funtana | <i>Caulerpa cylindracea</i> (Mixed)        | 19 June 2018    | 36,499           | 3,216       |
| 63        | Funtana | <i>Caulerpa cylindracea</i> (Monospecific) | 19 June 2018    | 41,842           | 3,848       |

**Table S2.** Sample ID, sampling station, community type, sampling date, number of raw sequence pairs, number of assembled contigs by MEGAHIT, N50 and L50 assembly statistics, number of predicted coding sequences (CDS) by Prodigal and number of eggNOG-mapper annotated CDS.

| Sample ID | Station | Community Type                             | Date             | No. of Raw<br>Sequence Pairs | No. of<br>Contigs | N50*      | L50 (bp)* | No. of<br>Predicted<br>CDS | No. of<br>Annotated<br>CDS |
|-----------|---------|--|------------------|------------------------------|-------------------|-----------|-----------|----------------------------|----------------------------|
| 45        | Funtana | <i>Cymodocea nodosa</i> (Mixed)            | 14 December 2017 | 288,446,922                  | 10,786,127        | 1,814,108 | 1,011     | 15,230,601                 | 9,066,667                  |
| 47        | Funtana | <i>Caulerpa cylindracea</i> (Monospecific) | 14 December 2017 | 207,149,524                  | 14,541,483        | 3,417,214 | 684       | 19,415,048                 | 12,179,801                 |
| 61        | Funtana | <i>Cymodocea nodosa</i> (Mixed)            | 19 June 2018     | 624,029,930                  | 25,843,073        | 5,036,213 | 873       | 35,296,634                 | 20,256,215                 |
| 63        | Funtana | <i>Caulerpa cylindracea</i> (Monospecific) | 19 June 2018     | 241,132,752                  | 15,909,915        | 4,071,946 | 654       | 20,643,084                 | 13,064,686                 |

\* The notation was preserved from the original output of BBTools stats.sh.

**Table S3.** Phyla into which CDS were classified, number and proportion of CDS in different phyla and sum of coding sequences' RPKM (Reads Per Kilobase Million) and their proportion in different phyla. Data are derived from sequenced metagenomes. Each metagenomic sample is labelled with sampling station, community type, sampling date and sample ID. For each sample top ten phyla based on RPKM were selected. CDS that were not successfully classified were excluded from the dataset.

| Phylum   | No. of CDS | CDS (%) | Summed RPKM | RPKM (%) |
|--|------------|---------|-------------|----------|
| <b>Funtana, <i>Cymodocea nodosa</i> (Mixed), 14 December 2017 (sample ID: 45)</b>            |            |         |             |          |
| <i>Proteobacteria</i>  | 4,021,486  | 57.08   | 526,874.683 | 56.71    |
| <i>Cyanobacteria</i>   | 459,942    | 6.53    | 155,294.303 | 16.72    |
| <i>Bacteroidetes</i>   | 1,388,758  | 19.71   | 116,972.727 | 12.59    |
| <i>Actinobacteria</i>  | 298,264    | 4.23    | 38,176.240  | 4.11     |
| Bacillariophyta  | 252,243    | 3.58    | 33,816.874  | 3.64     |
| <b>Streptophyta</b>  | 91,316     | 1.30    | 15,839.692  | 1.71     |
| Rhodophyta   | 76,937     | 1.09    | 15,298.496  | 1.65     |
| <i>Planctomycetes</i>  | 227,863    | 3.23    | 9,778.230   | 1.05     |
| <i>Verrucomicrobia</i>   | 39,912     | 0.57    | 2,142.129   | 0.23     |
| <i>Chloroflexi</i>   | 35,228     | 0.50    | 1,848.597   | 0.20     |
| <b>Funtana, <i>Caulerpa cylindracea</i> (Monospecific), 14 December 2017 (sample ID: 47)</b> |            |         |             |          |
| <i>Proteobacteria</i>  | 5,384,137  | 61.24   | 493,882.897 | 57.93    |
| <i>Bacteroidetes</i>   | 1,187,188  | 13.50   | 77,090.557  | 9.04     |
| <b>Chlorophyta</b>   | 13,745     | 0.16    | 70,249.251  | 8.24     |
| <i>Actinobacteria</i>  | 444,926    | 5.06    | 55,212.308  | 6.48     |
| <i>Cyanobacteria</i>   | 363,766    | 4.14    | 41,167.514  | 4.83     |
| <i>Planctomycetes</i>  | 502,248    | 5.71    | 27,522.230  | 3.23     |
| Bacillariophyta  | 243,702    | 2.77    | 23,336.154  | 2.74     |
| <i>Verrucomicrobia</i>   | 178,424    | 2.03    | 10,152.046  | 1.19     |
| Porifera   | 17,398     | 0.20    | 10,105.655  | 1.19     |
| Rhodophyta   | 48,544     | 0.55    | 7,117.314   | 0.83     |
| <b>Funtana, <i>Cymodocea nodosa</i> (Mixed), 19 June 2018 (sample ID: 61)</b>                |            |         |             |          |
| <i>Proteobacteria</i>  | 8,185,781  | 55.21   | 573,484.714 | 65.33    |
| <i>Bacteroidetes</i>   | 2,226,547  | 15.02   | 78,921.488  | 8.99     |
| Bacillariophyta  | 761,510    | 5.14    | 71,003.503  | 8.09     |

**Table S3.** Phyla into which CDS were classified, number and proportion of CDS in different phyla and sum of coding sequences' RPKM (Reads Per Kilobase Million) and their proportion in different phyla. Data are derived from sequenced metagenomes. Each metagenomic sample is labelled with sampling station, community type, sampling date and sample ID. For each sample top ten phyla based on RPKM were selected. CDS that were not successfully classified were excluded from the dataset. (*continued*)

| Phylum   | No. of CDS | CDS (%) | Summed RPKM | RPKM (%) |
|--|------------|---------|-------------|----------|
| <i>Actinobacteria</i>  | 655,055    | 4.42    | 43,153.463  | 4.92     |
| <i>Planctomycetes</i>  | 1,338,538  | 9.03    | 35,240.242  | 4.01     |
| <i>Cyanobacteria</i>   | 474,226    | 3.20    | 24,941.374  | 2.84     |
| <i>Verrucomicrobia</i>   | 371,837    | 2.51    | 19,794.186  | 2.25     |
| <b>Streptophyta</b>  | 108,235    | 0.73    | 9,555.978   | 1.09     |
| <i>Chloroflexi</i>   | 150,402    | 1.01    | 3,438.376   | 0.39     |
| Mollusca   | 50,750     | 0.34    | 1,768.748   | 0.20     |
| <b>Funtana, <i>Caulerpa cylindracea</i> (Monospecific), 19 June 2018 (sample ID: 63)</b> |            |         |             |          |
| <i>Proteobacteria</i>  | 5,429,374  | 60.24   | 440,876.241 | 56.73    |
| <b>Chlorophyta</b>   | 13,360     | 0.15    | 105,595.034 | 13.59    |
| <i>Bacteroidetes</i>   | 1,084,784  | 12.04   | 64,827.936  | 8.34     |
| <i>Planctomycetes</i>  | 794,696    | 8.82    | 43,962.118  | 5.66     |
| <i>Actinobacteria</i>  | 394,004    | 4.37    | 28,048.256  | 3.61     |
| <i>Cyanobacteria</i>   | 237,026    | 2.63    | 17,046.410  | 2.19     |
| <i>Verrucomicrobia</i>   | 203,253    | 2.26    | 12,033.107  | 1.55     |
| Bacillariophyta  | 174,954    | 1.94    | 11,959.067  | 1.54     |
| <i>Chloroflexi</i>   | 175,514    | 1.95    | 8,952.527   | 1.15     |
| <b>Streptophyta</b>  | 4,771      | 0.05    | 6,752.150   | 0.87     |