Supplementary

Octocorals in the Gulf of Aqaba exhibit high symbiont fidelity

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Supplementary Table 1. Similarity percentage (SIMPER) test results of the significant *Cladocopium* ITS2-types between species pairs. R.=*Rhytisma* and S.= *Sinularia*

| Species compared | ITS2 type | Average contribution | Average abundance species 1 | Average abundance species 2 | p. value |
| --- | --- | --- | --- | --- | --- |
| *S. vrijmoethi vs. S. leptoclados* | C65a | 0.13 | 591.08 | 881.13 | 0.04 |
| *S. vrijmoethi vs. Ovabunda* sp*.* | C3iu | 0.04 | 0.00 | 388.67 | < 0.01 |
| *S. vrijmoethi vs. S. leptoclados* | C65 | 0.06 | 571.23 | 194.63 | 0.03 |
| *S. vrijmoethi vs. S. leptoclados* | C3hy | 0.03 | 282.71 | 72.74 | 0.04 |
| *S. vrijmoethi vs. S. leptoclados* | C107d | 0.02 | 160.65 | 0.00 | 0.01 |
| *S. vrijmoethi vs. R. fulvum* | C65a | 0.11 | 591.08 | 0.00 | < 0.01 |
| *S. vrijmoethi vs. R. fulvum* | C65 | 0.10 | 571.23 | 0.00 | < 0.01 |
| *S. vrijmoethi vs. R. fulvum* | C1 | 0.07 | 54.68 | 455.54 | < 0.01 |
| *S. vrijmoethi vs. R. fulvum* | C3hx | 0.05 | 270.60 | 0.00 | < 0.01 |
| *S. vrijmoethi vs. R. fulvum* | C107c | 0.05 | 295.08 | 0.00 | < 0.01 |
| *S. vrijmoethi vs. R. fulvum* | C3hy | 0.05 | 282.71 | 0.00 | < 0.01 |
| *S. vrijmoethi vs. R. fulvum* | C65d | 0.04 | 248.64 | 0.00 | < 0.01 |
| *S. vrijmoethi vs. R. fulvum* | C107d | 0.03 | 160.65 | 0.00 | < 0.01 |
| *S. vrijmoethi vs. R. fulvum* | C1dw | 0.03 | 0.00 | 160.75 | 0.01 |
| *S. vrijmoethi vs. R. fulvum* | C3 | 0.02 | 201.24 | 56.86 | < 0.01 |
| *S. vrijmoethi vs. Ovabunda* sp*.* | C3cq | 0.17 | 0.00 | 1,481.45 | < 0.01 |
| *S. vrijmoethi vs. Ovabunda* sp*.* | C3it | 0.07 | 0.00 | 646.47 | < 0.01 |
| *S. vrijmoethi vs. Ovabunda* sp*.* | C65 | 0.06 | 571.23 | 0.00 | < 0.01 |
| *S. vrijmoethi vs. Ovabunda* sp*.* | C1b | 0.03 | 16.14 | 241.97 | < 0.01 |
| *S. vrijmoethi vs. Ovabunda* sp*.* | C65d | 0.03 | 248.64 | 0.00 | 0.01 |
| *S. vrijmoethi vs. Ovabunda* sp*.* | C3hx | 0.03 | 270.60 | 0.00 | 0.01 |
| *S. vrijmoethi vs. Ovabunda* sp*.* | C107c | 0.03 | 295.08 | 0.00 | 0.01 |
| *S. vrijmoethi vs. Ovabunda* sp*.* | C3hy | 0.03 | 282.71 | 0.00 | 0.01 |
| *S. vrijmoethi vs. Ovabunda* sp*.* | C3 | 0.02 | 201.24 | 0.00 | < 0.01 |
| *S. vrijmoethi vs .S. eilatensis* | C65 | 0.05 | 571.23 | 246.12 | 0.03 |
| *S. leptoclados vs. S. eilatensis* | C65a | 0.13 | 881.13 | 134.71 | 0.04 |
| *S. leptoclados vs. R. fulvum* | C65a | 0.16 | 881.13 | 0.00 | < 0.01 |
| *S. leptoclados vs. R. fulvum* | C1 | 0.05 | 215.78 | 455.54 | 0.02 |
| *S. leptoclados vs. R. fulvum* | C1dw | 0.04 | 0.00 | 160.75 | < 0.01 |
| *S. leptoclados vs. R. fulvum* | C3dx | 0.04 | 160.40 | 92.33 | < 0.01 |
| *S. leptoclados vs. R. fulvum* | C3 | 0.03 | 201.96 | 56.86 | < 0.01 |
| *S. leptoclados vs. R. fulvum* | 1451078\_C | 0.02 | 82.58 | 0.00 | 0.01 |
| *S. leptoclados vs. Ovabunda* sp*.* | C3cq | 0.20 | 0.00 | 1,481.45 | < 0.01 |
| *S. leptoclados vs. Ovabunda* sp*.* | C3it | 0.09 | 0.00 | 646.47 | < 0.01 |
| *S. leptoclados vs. Ovabunda* sp*.* | C3 | 0.03 | 201.96 | 0.00 | < 0.01 |
| *S. leptoclados vs. Ovabunda* sp*.* | C1b | 0.02 | 75.33 | 241.97 | 0.03 |
| *S. leptoclados vs .S. eilatensis* | C3dx | 0.03 | 160.40 | 76.45 | 0.01 |
| *S. eilatensis vs. Ovabunda* sp*.* | C3cq | 0.19 | 0.00 | 1,481.45 | < 0.01 |
| *S. eilatensis vs. Ovabunda* sp*.* | C3it | 0.08 | 0.00 | 646.47 | < 0.01 |
| *S. eilatensis vs. Ovabunda* sp*.* | C3iu | 0.05 | 0.00 | 388.67 | < 0.01 |
| *S. eilatensis vs. Ovabunda* sp*.* | C1b | 0.03 | 43.72 | 241.97 | < 0.01 |
| *R. fulvum vs. S. eilatensis* | C1 | 0.05 | 455.54 | 251.52 | 0.02 |
| *R. fulvum vs. S. eilatensis* | 1451078\_C | 0.03 | 0.00 | 108.07 | < 0.01 |
| *R. fulvum vs. S. eilatensis* | C65d | 0.03 | 0.00 | 154.39 | 0.02 |
| *R. fulvum vs. S. eilatensis* | C3hx | 0.03 | 0.00 | 144.75 | 0.04 |
| *R. fulvum vs. S. eilatensis* | C1dw | 0.03 | 160.75 | 0.00 | < 0.01 |
| *R. fulvum vs. S. eilatensis* | C3hy | 0.03 | 0.00 | 173.33 | 0.01 |
| *R. fulvum vs. Ovabunda* sp*.* | C3cq | 0.23 | 0.00 | 1,481.45 | < 0.01 |
| *R. fulvum vs. Ovabunda* sp*.* | C3it | 0.10 | 0.00 | 646.47 | < 0.01 |
| *R. fulvum vs. Ovabunda* sp*.* | C1b | 0.04 | 0.00 | 241.97 | < 0.01 |
| *R. fulvum vs. Ovabunda* sp*.* | C1dw | 0.03 | 160.75 | 0.00 | 0.03 |

Supplementary Table 2. Similarity percentage (SIMPER) test results of the significant *Symbiodinium* ITS2-types between species pairs. R.=*Rhytisma* and S.= *Sinularia*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Species compared | ITS2 type | Average contribution | Average abundance species 1 | Average abundance species 2 | p. value |
| *L. arboreum vs. L. savignyi* | A10 | 0.16 | 105.49 | 0.00 | 0.03 |
| *L. arboreum vs. L. savignyi* | A1fq | 0.08 | 0.00 | 53.49 | 0.03 |
| *L. arboreum vs. L. savignyi* | A9 | 0.06 | 0.00 | 37.29 | 0.03 |
| *L. arboreum vs. L. savignyi* | A1 | 0.05 | 0.00 | 35.76 | 0.03 |
| *L. arboreum vs. L. savignyi* | A10b | 0.04 | 28.73 | 0.00 | 0.03 |
| *L. arboreum vs. L. savignyi* | A1fo | 0.04 | 0.00 | 26.49 | 0.03 |
| *L. arboreum vs. L. savignyi* | A10a | 0.03 | 17.36 | 0.00 | 0.03 |
| *L. arboreum vs. L. savignyi* | A9e | 0.03 | 17.56 | 0.00 | 0.03 |
| *L. arboreum vs. L. savignyi* | A9a | 0.03 | 0.00 | 17.25 | 0.03 |
| *L. arboreum vs. L. savignyi* | A1is | 0.03 | 0.00 | 17.38 | 0.03 |
| *L. arboreum vs. L. savignyi* | A1fp | 0.03 | 0.00 | 18.06 | 0.03 |
| *L. arboreum vs. L. savignyi* | A9b | 0.02 | 0.00 | 16.07 | 0.03 |
| *L. arboreum vs. L. savignyi* | A1r | 0.02 | 0.00 | 16.28 | 0.03 |

Supplementary Table 3. Similarity percentage (SIMPER) test results for the ITS2-types significantly contributing to the differences found in Sinularia eilatensis between shallow and MCE colonies.

| Species compared | ITS2 type | Average contribution | Average abundance shallow | Average abundance MCE | p. value |
| --- | --- | --- | --- | --- | --- |
| Shallow *vs.* MCE | C65 | 0.08 | 492.25 | 0.00 | 0.04 |
| Shallow *vs.* MCE | C1 | 0.08 | 0.00 | 503.05 | 0.04 |
| Shallow *vs.* MCE | C3hy | 0.06 | 346.66 | 0.00 | 0.04 |
| Shallow *vs.* MCE | C65d | 0.05 | 308.78 | 0.00 | 0.04 |
| Shallow *vs.* MCE | C3hx | 0.05 | 289.51 | 0.00 | 0.04 |
| Shallow *vs.* MCE | C107c | 0.05 | 304.65 | 0.00 | 0.04 |
| Shallow *vs.* MCE | C65a | 0.04 | 269.43 | 0.00 | 0.04 |
| Shallow *vs.* MCE | C107d | 0.03 | 215.24 | 0.00 | 0.04 |
| Shallow *vs.* MCE | 1451078\_C | 0.03 | 0.00 | 216.14 | 0.04 |
| Shallow *vs.* MCE | 1451077\_C | 0.02 | 0.00 | 152.85 | 0.04 |
| Shallow *vs.* MCE | C3dx | 0.02 | 0.00 | 152.90 | 0.04 |

Figure S1. Sampling locations and specimen collection overview. Gulf of Aqaba/ Eilat Sea map with sampling localities.