**Supplementary Materials**

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**Figure S1.** Effect size calculated for the RGR**,** between the four aquariums.

**Table S1.** Results of one-way ANOVAs on each species per pH treatment, for the studied endpoints (Figure 1). Bold p-value indicate significant result. \*Kruskal-Wallis test due to non-normal distribution of the data. Post-hoc tests: Tukey for normal data and Dunn for non-normal data.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Tissue necrosis (%)** | | | | | | |
|  | MS | Error | F | P | Transformation | Post hoc |
| *A. cytherea* | NA | NA | NA | **0.006\*** | NA | 7.95<7.3 |
| *A. hyacinthus* | NA | NA | NA | **0.001\*** | NA | 7.95<7.3 |
| *A. pulchra* | NA | NA | NA | **0.01\*** | NA | 7.95<7.3 |
| *L. pruinosa* | 68.47 | 17 | 12.28 | **0.0005** | NA | 7.95<7.7,7.3 |
| *M. grisea* | NA | NA | NA | **0.002\*** | NA | 7.95<7.3; 7.7<7.3 |
| *P. cactus* | NA | NA | NA | **0.01\*** | NA | 7.95<7.3; 7.7<7.3 |
| *P. verrucosa* | NA | NA | NA | **0.002\*** | NA | 7.95<7.3 |
| **Relative growth rate (RGR, % per day)** | | | | | | |
|  | MS | Error | F | P | Transformation | Post hoc |
| *A. cytherea* | 131.18 | 16 | 6.651 | **0.008** | NA | 7.95>7.3; 7.7>7.3 |
| *A. hyacinthus* | 113.38 | 17 | 4.661 | **0.02** | NA | 7.95>7.3 |
| *A. pulchra* | 5.43 | 5 | 21.41 | **0.004** | log | 7.95>7.3; 7.7>7.3 |
| *L. pruinosa* | 15.78 | 11 | 6.71 | **0.01** | NA | 7.95>7.3 |
| *M. grisea* | 320.8 | 15 | 10.75 | **0.001** | NA | 7.95>7.7, 7.3 |
| *P. cactus* | 3.23 | 13 | 8.03 | **0.005** | log | 7.95>7.3; 7.7>7.3 |
| *P. verrucosa* | 3.34 | 16 | 0.958 | 0.405 | NA | NA |
| **Photosynthetic efficiency (*Fv/Fm*)** | | | | | | |
|  | MS | Error | F | P | Transformation | Post hoc |
| *A. cytherea* | 0.001 | 54 | 0.166 | 0.85 | cube root | NA |
| *A. hyacinthus* | 0.006 | 57 | 1.19 | 0.3 | NA | NA |
| *A. pulchra* | 0.01 | 50 | 5.3 | **0.008** | cube root | 7.95>7.7 |
| *L. pruinosa* | NA | NA | NA | 0.051\* | NA | NA |
| *M. grisea* | 0.003 | 57 | 0.5 | 0.6 | NA | NA |
| *P. cactus* | 0.06 | 56 | 12.65 | **2.90E-05** | sqrt | 7.95>7.3; 7.7>7.3 |
| *P. verrucosa* | 0.03 | 56 | 4.07 | **0.02** | NA | 7.95>7.3 |
| **Color index (%)** | | | | | | |
|  | MS | Error | F | P | Transformation | Post hoc |
| *A. cytherea* | 228.1 | 17 | 0.23 | 0.8 | NA | NA |
| *A. hyacinthus* | 3016.2 | 17 | 5.73 | **0.01** | NA | 7.95>7.3; 7.7>7.3 |
| *A. pulchra* | 0.32 | 15 | 3.47 | 0.057 | log | NA |
| *L. pruinosa* | NA | NA | NA | 0.84\* | NA | NA |
| *M. grisea* | 3.4 | 17 | 1.89 | 0.18 | sqrt | NA |
| *P. cactus* | 0.36 | 17 | 8.27 | **0.003** | log | 7.95>7.3; 7.7>7.3 |
| *P. verrucosa* | 1620.3 | 17 | 3.6 | **0.049** | NA | 7.7>7.3 |

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**Figure S2**. Effects of experimental conditions in each aquaria on the different parameters after 48 days for each studied species: **a** Tissue necrosis (proportion of dead tissue; %); **b** Relative growth rate (RGR, % weight increase relative to day 0; % per day); **c** Photosynthetic efficiency (*Fv/Fm*); **d** Relative change in color (change in color index relative to day 0; %). White, light gray, dark gray and black bars represent aquarium 4 (extreme low pH, pH 7.3), aquarium 3 (low pH, pH 7.7), aquarium 2 (ambient pH, pH 7.95) and aquarium 1 (ambient pH, pH 7.95), respectively. Data are means ± standard error. Letters indicate statistical differences for each species (see Table S2 for results of statistical analyses).

**Table S2.** Results of one-way ANOVAs on each species per aquaria, for the studied endpoints (Figure S2). Bold p-value indicate significant result. \*Kruskal-Wallis test due to non-normal distribution of the data. Post-hoc tests: Tukey for normal data and Dunn for non-normal data.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Tissue necrosis (%)** | | | | | | |
|  | MS | Error | F | P | Transformation | Post hoc |
| *A. cytherea* | NA | NA | NA | **0.003\*** | NA | 1<4 |
| *A. hyacinthus* | NA | NA | NA | **0.001\*** | NA | 1<4 ;2<4 |
| *A. pulchra* | NA | NA | NA | **0.03\*** | NA | 1<4 |
| *L. pruinosa* | 47.78 | 16 | 8.649 | **0.001** | NA | 1<3 ; 1<4 ; 2<4 |
| *M. grisea* | NA | NA | NA | **0.004\*** | NA | 1<4 |
| *P. cactus* | NA | NA | NA | **0.003\*** | NA | 1<4 ; 3<4 |
| *P. verrucosa* | NA | NA | NA | **0.003\*** | NA | 1<4 |
| **Relative growth rate (RGR; % per day)** | | | | | | |
|  | MS | Error | F | P | Transformation | Post hoc |
| *A. cytherea* | 89.23 | 15 | 4.313 | **0.02** | NA | 2>4 |
| *A. hyacinthus* | 98.86 | 16 | 4.602 | **0.02** | NA | 1>4 |
| *A. pulchra* | 3.853 | 4 | 26.67 | **0.004** | log | 1>4; 2>4 ;3>4 |
| *L. pruinosa* | 11.778 | 10 | 5.335 | **0.02** | NA | 2>4 |
| *M. grisea* | 217.04 | 14 | 6.937 | **0.004** | NA | 1>4 ;2>4 |
| *P. cactus* | 2.166 | 12 | 5.001 | **0.02** | log | 1>4 ;2>4 |
| *P. verrucosa* | 2.382 | 15 | 0.646 | 0.598 | NA | NA |
| **Photosynthetic efficiency (*Fv/Fm*)** | | | | | | |
|  | MS | Error | F | P | Transformation | Post hoc |
| *A. cytherea* | 0.001 | 53 | 0.128 | 0.943 | cube root | NA |
| *A. hyacinthus* | 0.005 | 56 | 0.847 | 0.474 | NA | NA |
| *A. pulchra* | 0.007 | 49 | 3.533 | **0.02** | cube root | 2>3 |
| *L. pruinosa* | NA | NA | NA | 0.051\* | NA | NA |
| *M. grisea* | 0.003 | 56 | 0.392 | 0.759 | NA | NA |
| *P. cactus* | 0.038 | 53 | 8.305 | **0.0001** | sqrt | 1>4 ;2>4 ;3>4 |
| *P. verrucosa* | 0.007 | 55 | 2.664 | 0.057 | NA | NA |
| **Color index (%)** | | | | | | |
|  | MS | Error | F | P | Transformation | Post hoc |
| *A. cytherea* | 228.9 | 16 | 0.216 | 0.88 | NA | NA |
| *A. hyacinthus* | 2292.9 | 16 | 4.527 | **0.02** | NA | 2<4 ;3<4 |
| *A. pulchra* | 1303.3 | 14 | 2.096 | 0.147 | NA | NA |
| *L. pruinosa* | NA | NA | NA | 0.84\* | NA | NA |
| *M. grisea* | 2.272 | 16 | 1.191 | 0.345 | sqrt | NA |
| *P. cactus* | 0.24 | 16 | 5.273 | **0.01** | log | 1>4 ;2>4 |
| *P. verrucosa* | 1469 | 16 | 3.628 | **0.036** | NA | 3<4 |

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**Figure S3.** Microscopy images of the calcium carbonate (CaCO3) skeleton of *Acropora pulchra* (scale bar: 2 mm), *Acropora cytherea* (1 mm), *Acropora hyacinthus* (1 mm), *Pavona cactus* (0.5 mm), *Montipora grisea* (0.5 mm), *Pocillopora verrucosa* (0.5 mm) and *Leptastrea pruinosa* (2 mm). Comparison betweenone individual in the ambient pH **(a)** and one individual showing tissue necrosis in the extreme low pH, with focus on live portions (covered by living tissues, **b**) and on dead portions of the skeleton (free from living tissues, **c**).

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**Figure S4.** Evolution of the photosynthetic efficiency (*Fv/Fm*) of each species over the time of the experiment (Day 0 to 48) at ambient pH (black), low pH (dark gray) and extreme low pH (light gray).

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**Figure S5.** Evolution of the color index (%; expressed as a percentage of the color at Day 0) of each species over the time of the experiment (Day 0 to 48) at ambient pH (black), low pH (dark gray) and extreme low pH (light gray).