S2: Results of Post hoc test between the photosynthetic and environmental parameters between three seagrass species *C. serrulata* [1], *T. hemprichii* [2] and *Enhalus acoroides* [3].

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Dependent Variable | (I) A | (J) A | Mean Difference (I-J) | Std. Error | Significance(p) | 95% Confidence Interval |
| Lower Bound | Upper Bound |
|   | PAR | 1 | 2 | 16.95 | 68.40 | 0.97 | -151.7 | 185.64 |
| 3 | 67.63 | 68.4s | 0.59 | -101.1 | 236.31 |
| 2 | 1 | -16.95 | 68.42 | 0.97 | -185.6 | 151.73 |
| 3 | 50.67 | 68.42 | 0.74 | -118.0 | 219.36 |
| 3 | 1 | -67.63 | 68.42 | 0.59 | -236.3 | 101.05 |
| 2 | -50.67 | 68.42 | 0.74 | -219.4 | 118.01 |
| y | 1 | 2 | 0.02 | 0.06 | 0.91 | -0.1 | 0.17 |
| 3 | -0.14 | 0.06 | **0.05** | -0.3 | 0.00 |
| 2 | 1 | -0.02 | 0.06 | 0.91 | -0.2 | 0.12 |
| 3 | -0.17 | 0.06 | **0.02** | -0.3 | -0.03 |
| 3 | 1 | 0.14 | 0.06 | **0.05** | 0.0 | 0.29 |
| 2 | 0.17 | 0.06 | **0.02** | 0.0 | 0.31 |
| DIC | 1 | 2 | 33.63 | 22.04 | 0.29 | -20.7 | 87.95 |
| 3 | 103.93 | 22.04 | **0.00** | 49.6 | 158.25 |
| 2 | 1 | -33.63 | 22.04 | 0.29 | -88.0 | 20.70 |
| 3 | 70.30 | 22.04 | **0.01** | 16.0 | 124.63 |
| 3 | 1 | -103.93 | 22.04 | **0.00** | -158.3 | -49.61 |
| 2 | -70.30 | 22.04 | **0.01** | -124.6 | -15.98 |
| DO | 1 | 2 | -0.93 | 6.84 | 0.99 | -17.8 | 15.94 |
| 3 | -13.71 | 6.84 | 0.13 | -30.6 | 3.16 |
| 2 | 1 | 0.93 | 6.84 | 0.99 | -15.9 | 17.80 |
| 3 | -12.78 | 6.84 | 0.17 | -29.6 | 4.10 |
| 3 | 1 | 13.71 | 6.84 | 0.13 | -3.2 | 30.58 |
| 2 | 12.78 | 6.84 | 0.17 | -4.1 | 29.65 |
| pCO2 | 1 | 2 | 27.20 | 40.74 | 0.78 | -73.2 | 127.64 |
| 3 | 3.29 | 40.74 | 1.00 | -97.2 | 103.73 |
| 2 | 1 | -27.20 | 40.74 | 0.78 | -127.6 | 73.25 |
| 3 | -23.91 | 40.74 | 0.83 | -124.4 | 76.53 |
| 3 | 1 | -3.29 | 40.74 | 1.00 | -103.7 | 97.15 |
| 2 | 23.91 | 40.74 | 0.83 | -76.5 | 124.35 |
| pH | 1 | 2 | -0.01 | 0.03 | 0.94 | -0.1 | 0.07 |
| 3 | 0.01 | 0.03 | 0.94 | -0.1 | 0.10 |
| 2 | 1 | 0.01 | 0.03 | 0.94 | -0.1 | 0.10 |
| 3 | 0.02 | 0.03 | 0.78 | -0.1 | 0.11 |
| 3 | 1 | -0.01 | 0.03 | 0.94 | -0.1 | 0.07 |
| 2 | -0.02 | 0.03 | 0.78 | -0.1 | 0.06 |
| Chl-*a* [µg/l] | 1 | 2 | 0.01 | 0.01 | 0.61 | 0.0 | 0.05 |
| 3 | 0.03 | 0.01 | **0.00** | 0.0 | 0.06 |
| 2 | 1 | -0.01 | 0.01 | 0.61 | 0.0 | 0.02 |
| 3 | 0.02 | 0.01 | **0.01** | 0.0 | 0.05 |
| 3 | 1 | -0.03 | 0.01 | **0.00** | -0.1 | 0.00 |
| 2 | -0.02 | 0.01 | **0.01** | -0.1 | 0.02 |

\*. The mean difference is significant at the 0.05 level. p-values marked in bold indicate numbers that are significant.