### TABLE S1 | Model parameters for PSII function under transient heat stress. The inverted exponential function *Fv/Fm* = *Fv/Fm* (0) – e -*S*+*kx* was used to model changes in *Fv/Fm* under transient heat stress, where *Fv/Fm* is expressed as % (relative to untreated fragments)*, Fv/Fm* (0) = *Fv/Fm*prior to thermal stress (i.e. *x =* 0), *x* = time (d), *S* is a parameter related to the length of the period during which *Fv/Fm* remains stable, and *k* (d-1) is the rate constant that quantifies the rate of *Fv/Fm* decrease. This model does not fit *M. digitata* or *P. lutea* adequately (or at all in Summer) due to the thermal tolerance of PSII function in these two species. *Fv/Fm*(min) represents the final *Fv/Fm* expressed as % (relative to untreated fragments) reached at the conclusion of the experiment. Values represent means (N = 4) ± SE.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Spring | *A. aspera* | *A. digitifera* | *A. formosa* | *A. millepora* | *P. damicornis* | *M. digitata* | *I. palifera* | *S. pistillata* | *P. cylindrica* | *P. lutea* |
| *S* | 5.18  (± 3.26) | 2.67  (± 1.52) | 4.94  (± 2.81) | 2.64  (± 1.59) | 6.00  (± 2.63) | 1.74  (± 4.11) | 1.12  (± 2.015) | 1.96  (± 0.94) | 6.80  (± 5.17) | -0.69  (± 1.01) |
| *k* | 0.94  (± 0.40) | 0.72  (± 0.19) | 1.07  (± 0.34) | 0.65  (± 0.20) | 1.08  (± 0.0.32) | 0.32  (± 0.55) | 0.59  (± 0.25) | 0.78  (± 0.12) | 1.11  (± 0.63) | 0.16  (± 0.14) |
| *R2* | 0.26 | 0.44 | 0.43 | 0.35 | 0.46 | 0.02 | 0.22 | 0.75 | 0.14 | 0.03 |
| *Fv/Fm*(min) | 83.33  (± 8.43) | 68.28  (± 10.12) | 44.63  (± 25.81) | 79.61  (± 8.14) | 75.31  (± 8.85) | 98.99  (± 2.09) | 50.74  (± 23.43) | 0 | 85.85  (± 9.17) | 92.79  (± 3.44) |
| Summer |  |  |  |  |  |  |  |  |  |  |
| *S* | 1.64  (± 0.53) | 0.09  (± 0.34) | 3.24  (± 1.43) | 0.84  (± 0.47) | 0.38  (± 0.73) | - | 1.08  (± 1.25) | 0.69  (± 0.56) | 0.69  (± 0.43) | - |
| *k* | 0.58  (± 0.06) | 0.39  (± 0.05) | 0.82  (± 0.18) | 0.45  (± 0.06) | 0.58  (± 0.09) | - | 0.56  (± 0.16) | 0.57  (± 0.07) | 0.29  (± 0.06) | - |
| *R2* | 0.77 | 0.68 | 0.54 | 0.68 | 0.63 | - | 0.36 | 0.74 | 0.40 | - |
| *Fv/Fm*(min) | 75.76  (± 4.19) | 78.39  (± 3.66) | 56.83  (± 19.86) | 81.07  (± 3.98) | 19.91  (± 19.91) | 103.73  (± 8.99) | 60.88  (± 20.54) | 41.13  (± 13.91) | 88.56  (± 4.92) | 92.19  (± 3.98) |