### 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.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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) |