

Figure S1.

The responses of C_i (a) and stomatal conductance (b) in *F. pringlei*, *F. floridana*, *F. brownii* and *F. bidentis* to changes in atmospheric pO_2 . Results correspond to the same measurements as Fig. 1a. Values represent averages and standard error of 4 replicates.

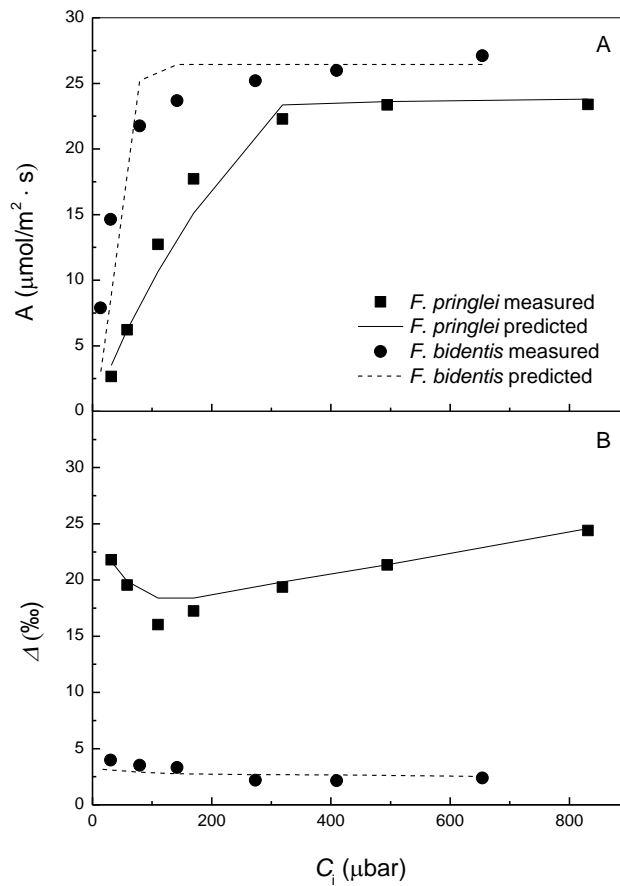


Figure S2.

Models of CO₂ response of assimilation rate and carbon isotope discrimination in the C₃ and C₄ species. **(a)** Measured CO₂ response of *A* in *F. pringlei* and *F. bidentis*, compared with the predicted responses. **(b)** Measured CO₂ response of Δ in *F. pringlei* and *F. bidentis*, compared with the predicted responses. Parameters used for modelling are presented in Table 1.

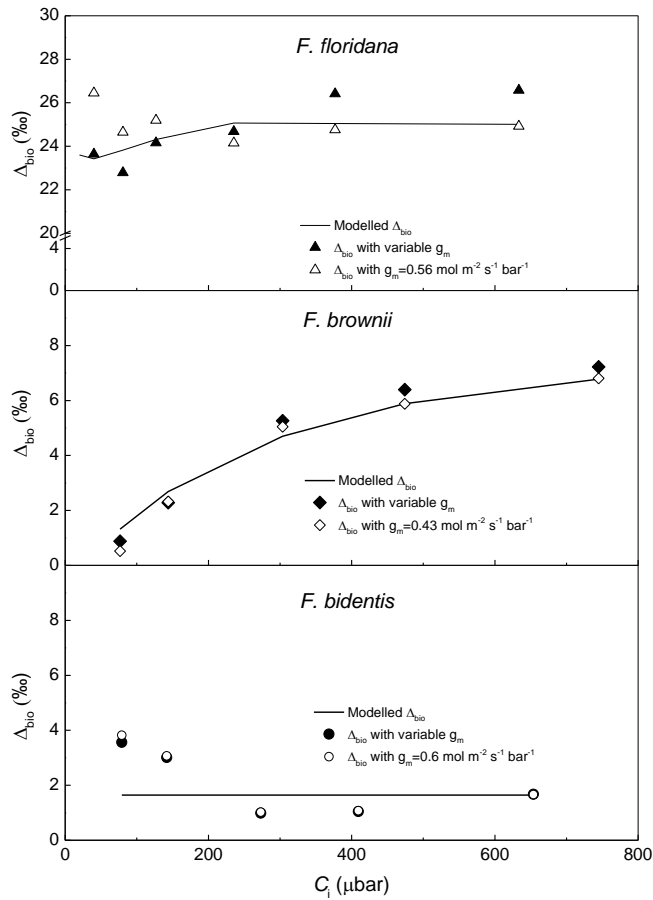


Figure S3.

The effect of assuming constant or variable g_m in the calculation of the biochemical fractionation (Δ_{bio}) in *F. floridana*, *F. brownii* and *F. bidentis*. Δ_{bio} was calculated from eq. 12 using gas exchange and Δ measurements, and assuming constant (open symbols) or variable g_m (solid symbols). The variable g_m values applied are shown in Fig. 6. Constant g_m is the average of the variable values obtained for each species. Modelled Δ_{bio} (solid lines) was calculated from eq. 14 using the photosynthesis model with the parameters given in Table 1. *F. bidentis* is considered a strict C_4 , thus modelled Δ_{bio} is constant and independent from C_i and g_m .