



Figure 4

Effects of P toxicity on Rubisco concentration and activation by Rubisco activase (RCA). (a) Leaf nitrogen content in rice leaf blades and (b) Rubisco concentration in rice leaf blades ($n = 3-4$). The Rubisco activation was calculated from the ratio of the initial to maximum Rubisco activity (c), and the carbamylation potential was calculated from the ratio of the total to the maximum Rubisco activity (d) ($n = 3-5$). The white and dark grey bars indicate the results of the leaves sampled under illumination and at night, respectively, under control-Pi conditions. (e) Result of the western blot analysis, which targets RCA in rice leaves. Red arrows and Greek characters indicate the isoforms of RCA. Each sample was loaded on a leaf area basis (0.02 cm²). (f) and (g) Relative concentrations of the total RCA and each isoform evaluated from the western blot analysis. The RCA concentration in the control-Pi plants is set as “1” and the relative content is shown. The black, red, and grey characters above the bars indicate the statistical results for the α , β , and β^* isoforms, respectively. (h) and (i) Isoform ratio between α/β and β^*/β ($n = 4$). Results are expressed as means \pm SD. Different letters indicate significant differences among different Pi conditions (Tukey’s HSD test, $p < 0.05$).