Figure 4

Effects of P toxicity on Rubisco content and activation by Rubisco activase (RCA). (a) shows the leaf nitrogen content in rice leaves, and (b) shows the Rubisco content in rice leaves (n = 3-4). 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 gray bars indicate the results of the leaves sampled under illumination and at night, respectively, under the control-Pi conditions. (e) shows the 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 the leaf area basis (0.02 cm^2). (f) and (g) show the relative content of the total RCA and each isoform evaluated from the western-blot analysis. The RCA content in the control-Pi plants, set as "1" and the relative content is shown. The black, red, and gray characters above the bars indicate the statistical results of the α, β, β^* isoforms, respectively. (h) and (i) show the isoform ratio between α/β and β^*/β (n = 4). These results are expressed as mean ± SD. Different alphabets indicate the significant difference among different Pi application conditions (Tukey-Kramer's HSD test, $p < 0.05$).