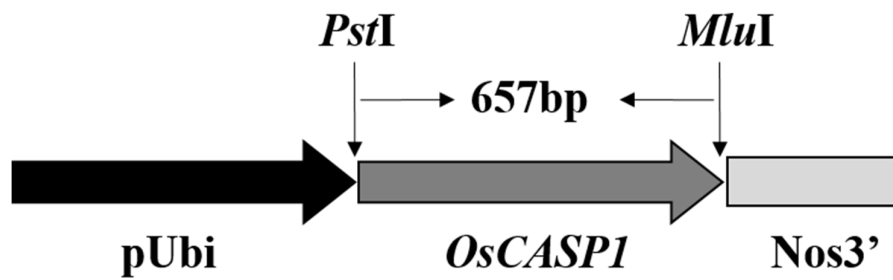
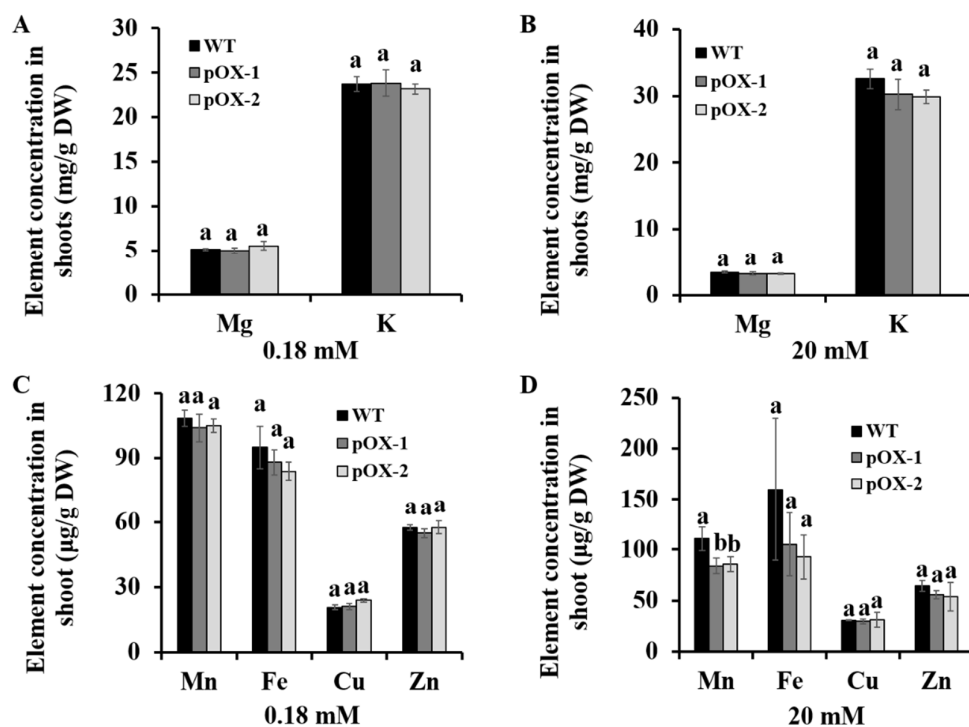


## Supplementary Materials

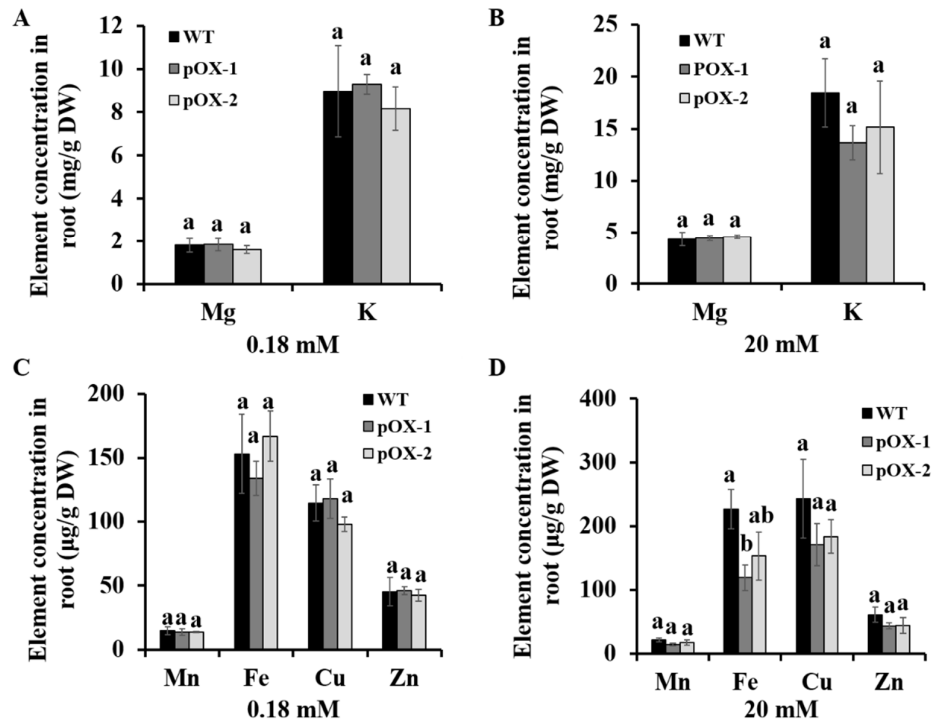


**Supplementary Figure S1.** Scheme of the construct used for the transformation. Maize Ubiquitin promoter was fused with *OsCASP1* cDNA (657 bp).

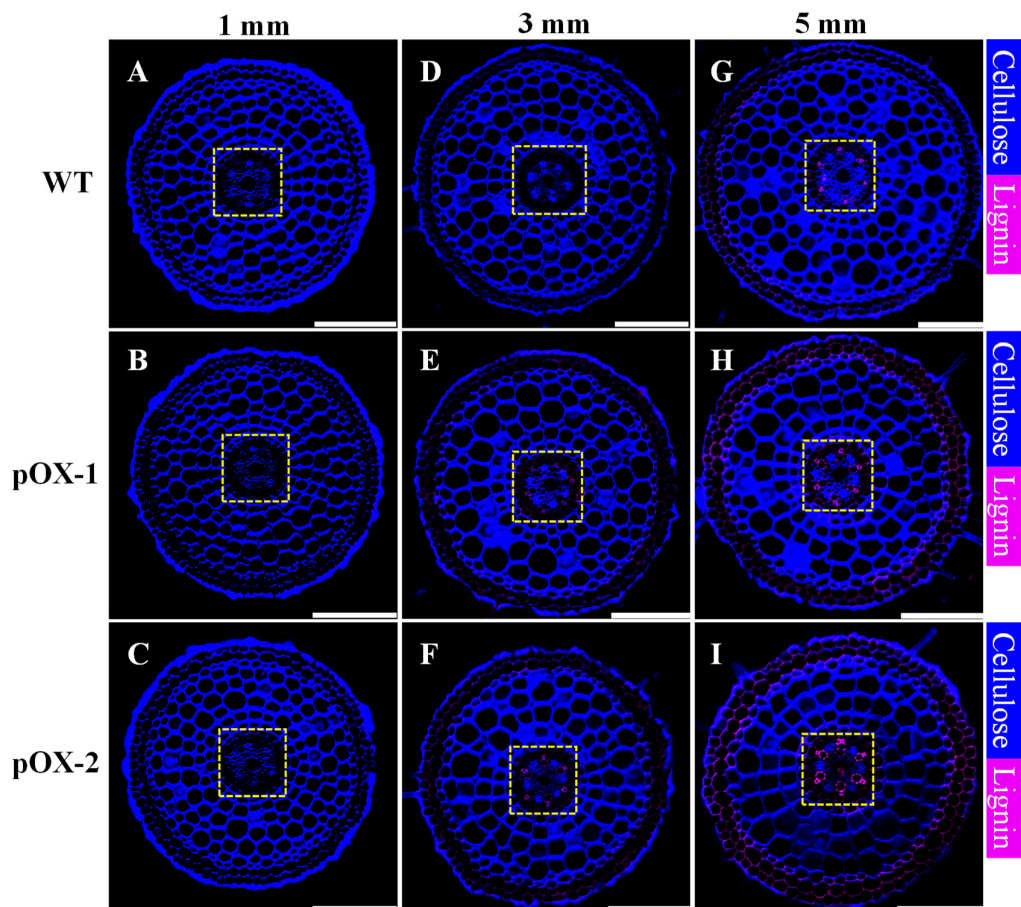


**Supplementary Figure S2.** Mineral elemental concentration in the shoots of wild-type rice and two *OsCASPI*-overexpressed lines at different Ca concentrations. (A) and (B) Concentration of Mg and K under different Ca conditions (0.18 and 20 mM). (C) and (D) Concentration of Mn, Fe, Cu and Zn under different Ca conditions (0.18 and 20 mM). Two-week-old seedlings were grown in a nutrient solution containing 0.18 or 20 mM  $\text{CaCl}_2$  for 12 d. The data are presented as means  $\pm$  SD ( $n = 3$ ). Significant difference was determined by Tukey test and labeled with different letters ( $p < 0.05$ ).

**Fig. S3**



**Supplementary Figure S3.** Mineral elemental concentration in the roots of wild-type rice and two *OsCASP1*-overexpressed lines at different Ca concentrations. (A) and (B) Concentration of Mg and K under different Ca conditions (0.18 and 20 mM). (C) and (D) Concentration of Mn, Fe, Cu and Zn under different Ca conditions (0.18 and 20 mM). Two-week-old seedlings were grown in a nutrient solution containing 0.18 or 20 mM  $\text{CaCl}_2$  for 12 d. The data are presented as means  $\pm$  SD ( $n = 3$ ). Significant difference was determined by Tukey test and labeled with different letters ( $p < 0.05$ ).



**Supplementary Figure S4.** Observation of CS formation in the wild-type plants and *OsCASPI*-overexpressed lines. (A) to (I) Observation of Casparian strip formation in the wild type (WT) and two *OsCASPI*-overexpressed lines. Lignin staining was performed in the root sections (1, 3, and 5 mm from the apex) of the wild type (A, D, G), pOX-1 (B, E, H) and pOX-2 (C, F, I). Magenta shows signal of lignin and blue shows cellulose. Scale bars, 100  $\mu$ m. Image of the yellow box area in (A) to (I) was magnified and shown in Fig.4.