

SUPPLEMENTARY DATA

FIG. S1. Comparison of mean cell wall thickness (\pm s.e.) of adjoining bundle sheath and mesophyll walls in three C_4 Sesuvioideae species (*Trianthema portulacastrum*, *T. sheilae*, *Zaleya pentandra*; $n = 40$ per species). Letters indicate statistically significant differences at $P < 0.05$.

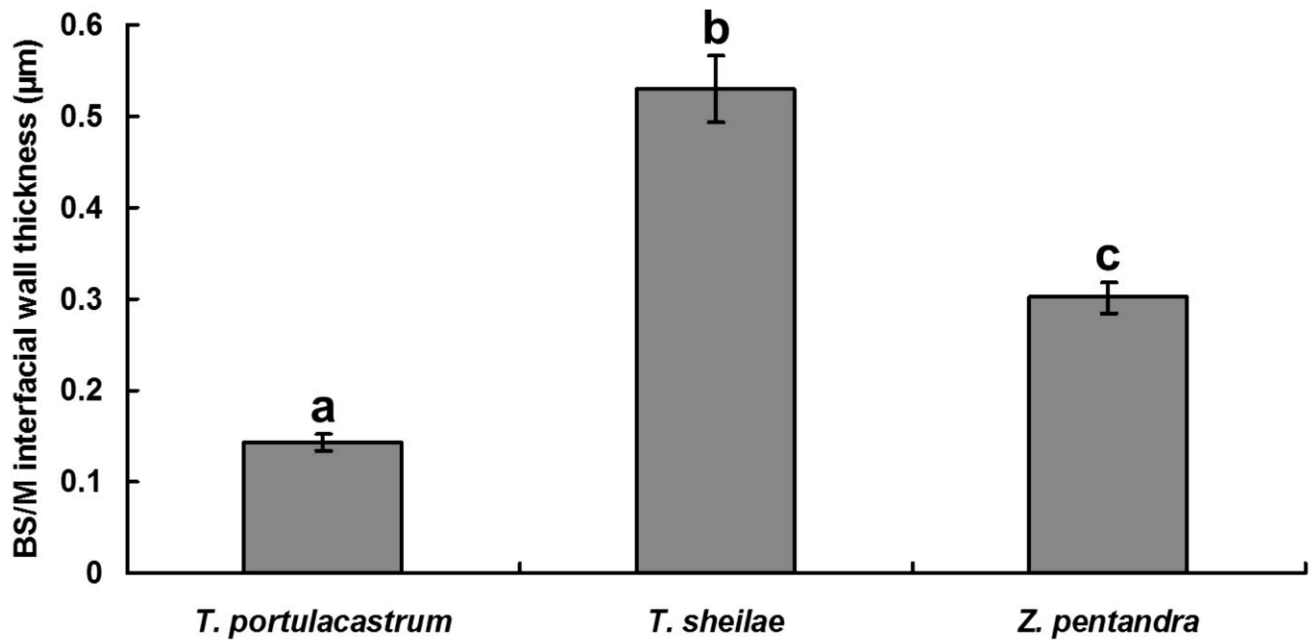


FIG. S2. Transmission electron micrographs of leaf blade cross-sections showing numerous plasmodesmata traversing adjoining mesophyll and bundle sheath walls in primary pit fields. (A) *Trianthema portulacastrum*; (B) *Trianthema sheilae*; (C) *Zaleya pentandra*. Abbreviations: BS, bundle sheath; M, mesophyll; Pd, plasmodesmata; PPF, primary pit field. Scale bars (A): = 0.4 μm ; (B) = 0.5 μm ; (C) = 0.1 μm .

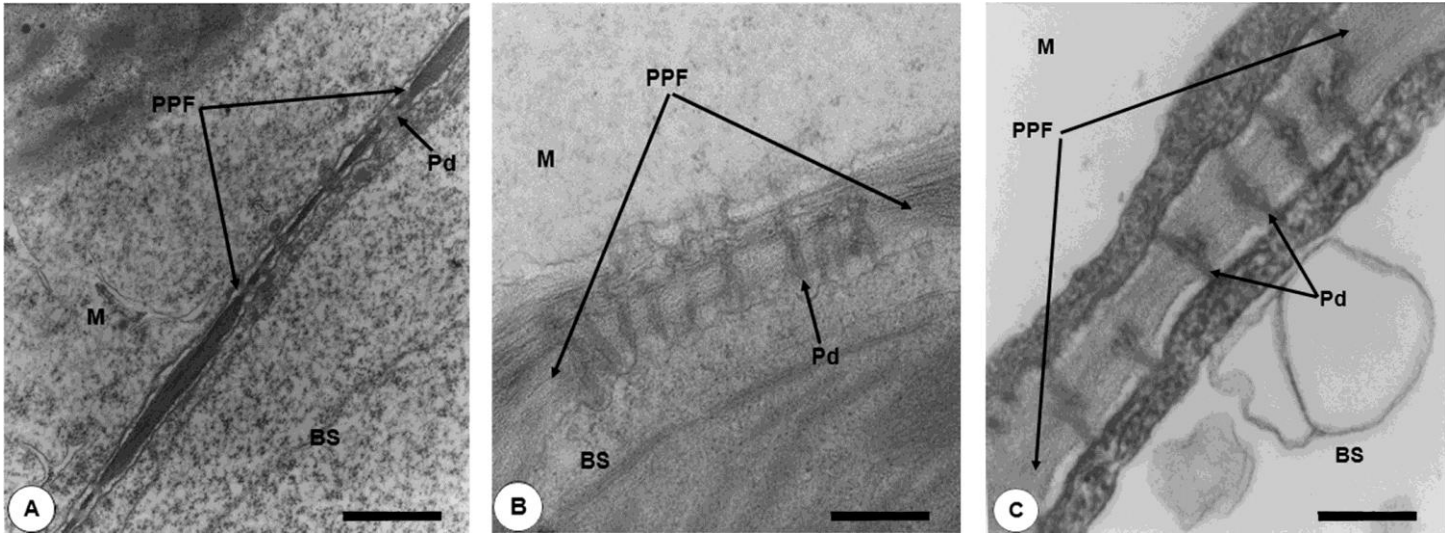


FIG. 3. Light micrographs of *in situ* immunolocalizations of PEP-CK in cross-sections through leaves of comparison C₄ species and *Trianthema sheilae*. Tissue-specific immunolabelling of PEP-CK is indicated by the brown precipitate. (A) PEP-CK *Melinis minutiflora*; (B) NAD-ME *Cleome gynandra*; (C, D) NAD-ME *Trianthema sheilae*. Scale bars = 100 μ m.

