

SUPPLEMENTARY DATA

Fig. S1: anatomy of the *Tetrastigma* host roots. The cambium is marked by dotted black and white lines and the sclerenchyma fibers are marked by orange outlines. (A) Periphery of a secondary root of the *Rhizanthus* host. A cap of primary phloem fibres (red arrowhead) on top of the storied secondary phloem indicates the position of the obliterated primary phloem. A cluster of cortical sclereid fibres is denoted with a black arrowhead. Rhytidome is not present. (B) Periphery of a secondary root of the *Sapria* host, showing the layered structure of the secondary phloem given by alternating sieve tube elements and thick-walled fibres. A cap of primary phloem fibres (red arrowhead) on top of the storied secondary phloem indicates the position of the obliterated primary phloem. Rhytidome is not present. A minor strand of secondary phloem with a smaller number of elements produced radially is shown on the right. The phelloderm is a narrow layer of isodiametrical cells. (C) Periphery of a secondary root of the *Rafflesia* host, showing the sectorization of the vascular tissue. Yellow arrowheads mark the abundant mucilage cells. (D) A raphide-containing mucilage cell (yellow arrowhead) and druses (yellow asterisks) in the *Rhizanthus* host cortex. E. Secondary phloem of the *Rafflesia* host depicting the intrusive growth of the endophyte (dotted yellow outline) through secondary phloem fibres. Scale bars: (A–C) = 2 mm; (D) = 50 μ m; (E) = 150 μ m.

