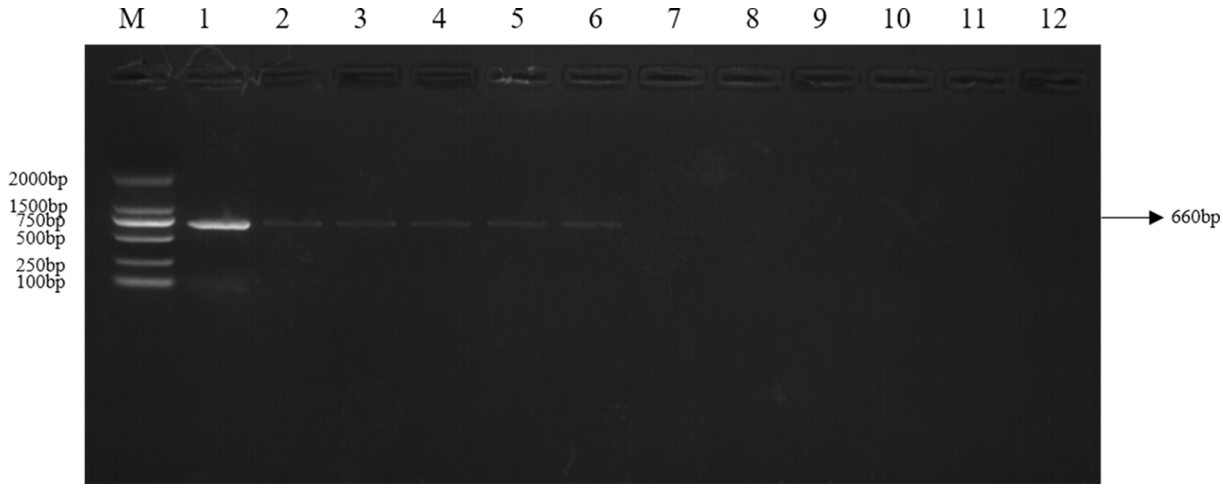
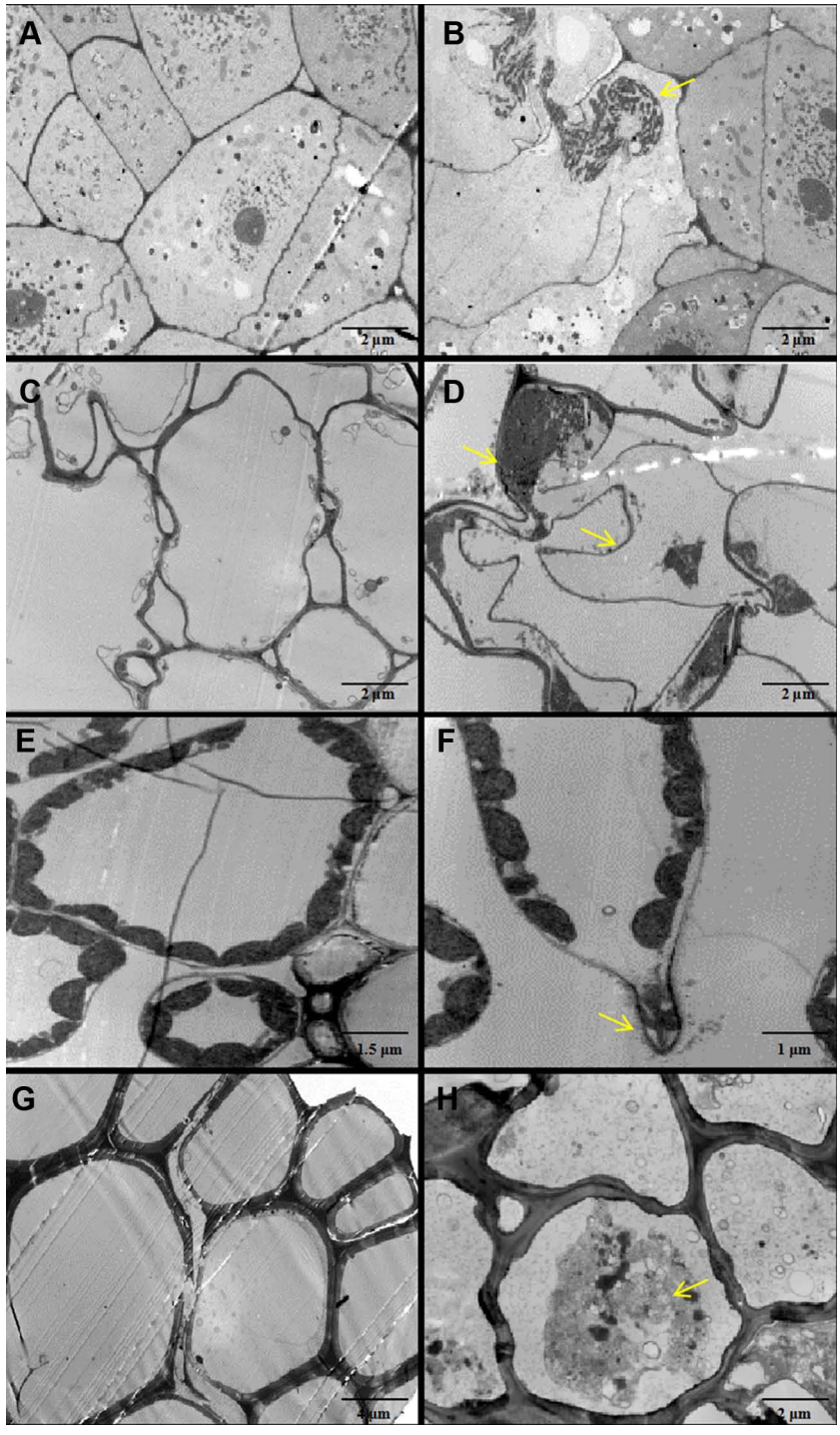


Supplementary Fig. S1. Molecular detection of *Tilletia laevis* in wheat. M, 2000 DNA marker; lane 1, DNA of *T. laevis* teliospores; lanes 2-6, DNA of wheat leaves infected by *T. laevis*; lanes 7-11, DNA of mock-inoculated wheat leaves; lane 12, sterilized ddH_2O as the negative control.



Supplementary Fig. S2. *Tilletia laevis*-infected wheat roots and leaves observed by transmission electron microscopy. (A) The root cells in healthy wheat plants. Regular cell morphology and intact cellular structure (×3,500). (B) The root cells in infected wheat plants. The arrow indicates cell deformation, with impurities accumulated in the cell (×3,500). (C) Leaf cells in healthy wheat plants. Clear boundaries between adjacent cells (×5,000). (D) The infected leaf cells showed deformed and an irregular arrangement. The boundaries between adjacent cells were not clear. Arrows indicate deformed cells with impurities accumulated in the cell (×5,000). (E) Mock wheat mesophyll cells. Chloroplasts were closely arranged on the lateral side of the cell (×1,200). (F) Infected mesophyll cells. The arrow indicates deformed chloroplasts (×2,500). (G) The sieve tube cells in mock wheat tissues usually showed a relatively regular arrangement with no accumulation of impurities (×2000). (H) Sieve tube cells in plants infected with *T. laevis*. The arrow indicates the deformed of the sieve tube cell (×15,000).