

Article

Histological Changes Associated with the Graft Union Development in Tomato

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Supplementary material

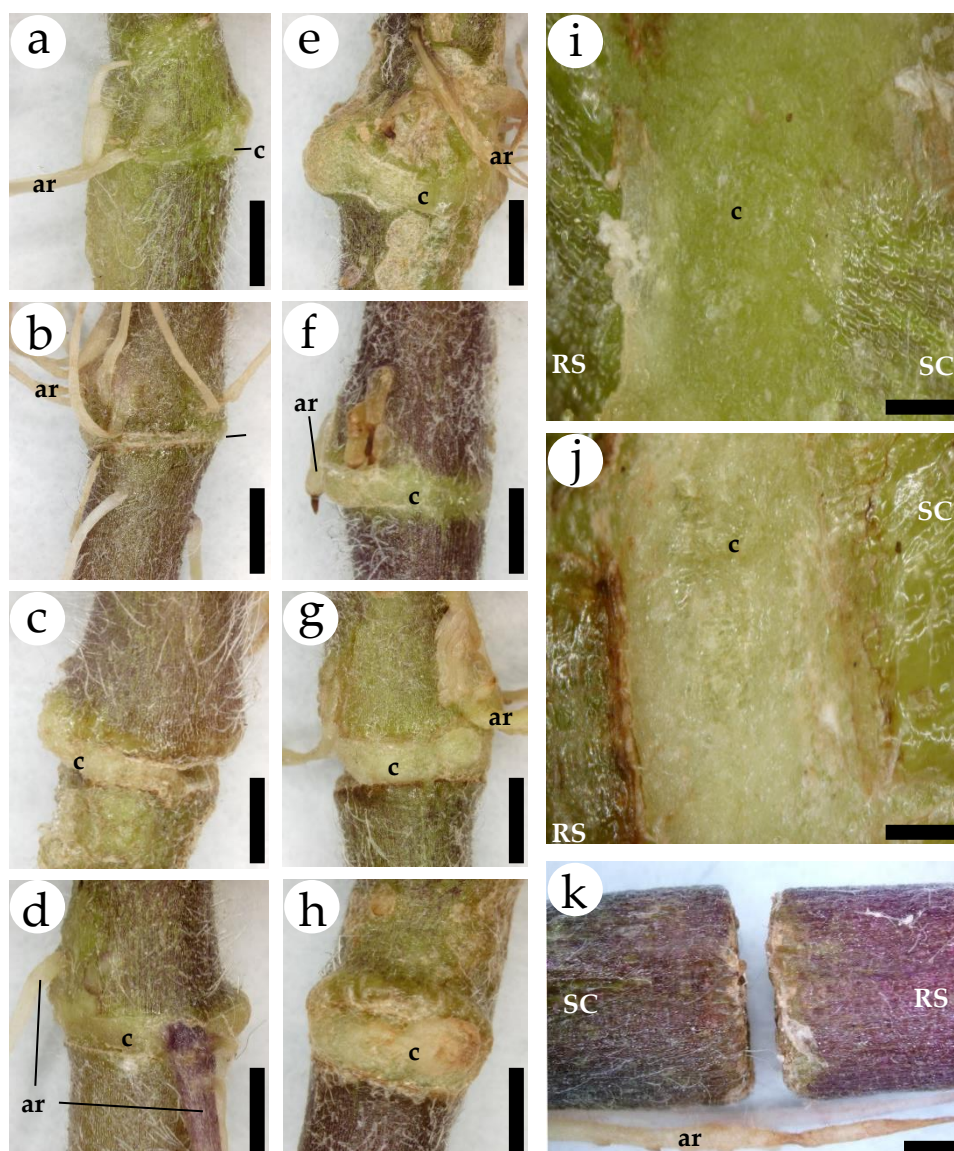


Figure S1. Graft junctions at (a–d) 10 and (e–k) 20 DAG. **a, b, e, f, i, k** Homograft; **c, g, j** Minibel (scion) – Marmande VR (rootstock) heterograft; **d, h** Marmande VR (scion)–Minibel (rootstock) heterograft. Scale bars: **a–h, k** = 1 mm; **i, j** = 0,5 mm. *ar* adventitious roots, *c* callus, *RS* rootstock, *SC* scion. In **a–h** the scion is the top part and rootstock the bottom part. Note the adventitious roots arising on the scion and the changes in the callus development. **i, j** Callus detail. **k** Unsuccessfully grafted plant, note the absence of scion – rootstock adhesion.

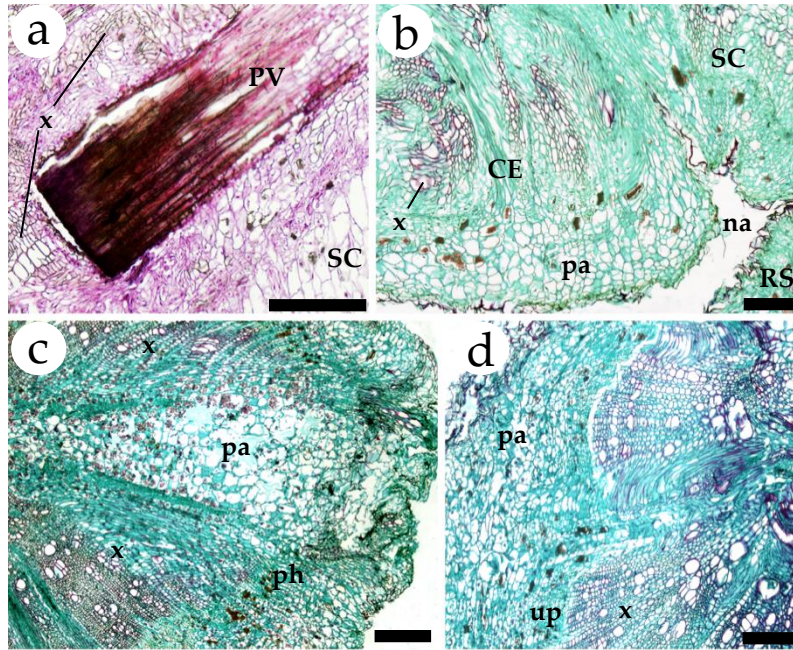


Figure S2. Details of graft histological development. **a** Pre-existing vascular tissue (PV) at 10 DAG; note how the most distal end is composed of dead cells only. **b** Longitudinal section of the expansion of the callus (CE) at 20 DAG; note the xylem (x) and the parenchyma (pa) towards the exterior. **c** and **d** Vestiges of the graft process at 210 DAG: **c** Transverse section of the graft junction area, showing the discontinuity of the vascular ring. **d** Transverse section of the graft junction area; note the anomalies of the vascular ring. **a** Haematoxylin-Eosin; **b–d** Safranin-fast green. **a–d** Bright field view. *CE*, callus expansion, *na* non-adhesion, *pa* parenchyma, *ph* phloem, *PV* pre-existing vascular tissue, *RS* rootstock, *SC* scion, *x* xylem. Scale bars: **a, d** = 100 μ m; **b, c** = 200 μ m.

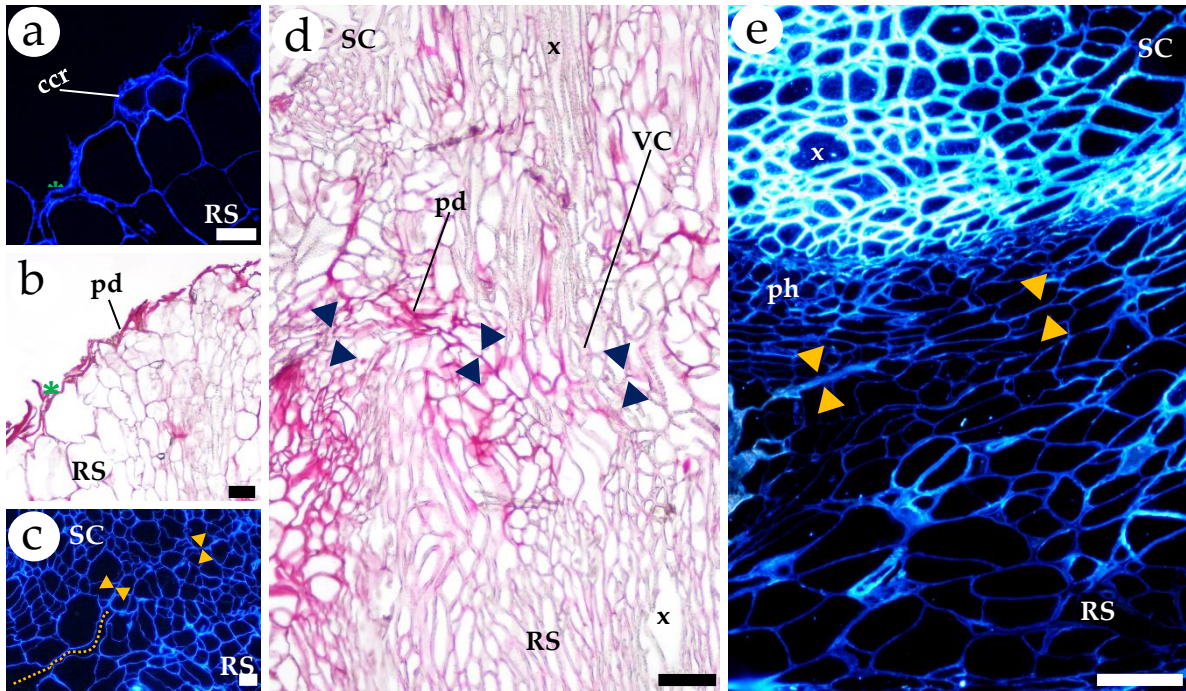


Figure S3. Longitudinal sections staining for polysaccharides (calcofluor White -cellulose- and ruthenium red -pectins-) from homografts. **a** Rootstock section at 2 DAG; note the cut edge, especially the crushed cells and remnants (ccr), as well as the intense fluorescence from cellulose of these cell walls. **b** Rootstock section at 4 DAG; note the deposition of high amount of pectins at the cut edge. **c** Early graft union section at 8 DAG; note the line of adhesion with cellulosic cell wall thickenings. **d** Graft union section at 20 DAG; note the permanence of the pectin depositions at the adhesion line as well as vascular (re)connections (vc). **e** Graft union section at 20 DAG; note the cellulosic cell walls at line of adhesion and transversal section of vasculature (xylem and phloem). **a, c, d** Calcofluor White; **b, e** Ruthenium red. **a, c, d** Epifluorescence microscopy. **b, e** Bright field view. *ccr* crushed cells and remains, *pd* pectin deposition, *ph* phloem, *RS* rootstock, *SC* scion, *VC* vascular connections, *x* xylem. Green asterisk indicates cut edges. Triangle arrows indicate adhesion line. Scale bars: **a, c** = 50 μm ; **b, d, e** = 100 μm .