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HISTOLOGICAL CHANGES DUE TO COMBINED INOCULATION OF TWO ROOT-KNOT AND RENIFORM NEMATODES IN TOBACCO

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Abstract

Histopathological studies revealed that *Meloidogyne* larvae entered roots by a puncturing action of the stylet and intercellular penetration reached to the stellar region where cells were damaged. Hypertrophy and hyperplasia of the surrounding cells lead to the formation of galls on the roots. Infected cells showed protruded tissue. Evidence of reproduction was shown in *M. incognita* and *M. javanica* where egg masses and eggs in gelatinous matrices were observed in infected roots. Severe damage to the vascular tissues was displayed by xylem disruption. *R. reniformis* stimulated hypertrophy of the pericycle and endodermal cells to induce typical syncytia, while *Meloidogyne* spp. induced giant cells. Infections by *R. reniformis*, initiated syncytia at the nematode feeding sites by cell wall dissolution and coalescence of cytoplasm of the adjacent cells. Mature kidney shaped *R. reniformis* females were seen. Cells surrounding the nematode feeding sites were dark and thick when compared to similar tissue in healthy roots. Infected cells had wall thickenings and granular cytoplasm with enlarged nuclei and nucleoli. Nematode damage to phloem and cortical parenchyma resulted in the killing of feeder roots which ultimately affected plant growth.