THE HISTOLOGY AND SUSCEPTIBILITY AND RESISTANCE OF CARNATION TO FUSARIUM WILT

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Fusarium oxysporum f. sp. *dianthi* is able to colonize the epidermis and cortex of carnation roots. The vascular cylinder seems to be entered rather via root wounds, however. By colonizing the vascular tissues of the roots, the pathogen eventually reaches the stem. Both in roots and stems, colonized vascular tissue is degraded, leaving colonized roots and stems hollow. Disease symptoms such as withering of leaves and shrivelling of the stem are a consequence of this destruction of the vascular tissues.

Resistance to *F. oxysporum* f. sp. *dianthi* is present in the root epidermis, and particularly in the phellem (periderm) surrounding the vascular cylinder of older root parts. Resistance is expressed in the vascular tissues of both roots and stems by a localization response which prohibits any further colonization and therefore the development of disease. This response consists of occlusion of colonized vessels with brown gels and formation of suberized phellem (periderm) tissue surrounding these vessels. In roots, the localization tissue is often cast out of the vascular cylinder. In stems, compensation for the loss of function of occluded vessels is found in vascular regeneration. The partial character of resistance is probably based on quantitative differences among cultivars in localization capacity.