

Host Genotype- and Temperature-Dependent Colonization of *In Vitro* Carnation Callus Cultures by *Fusarium oxysporum* f.sp. *dianthi* Race 2

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Different *in vivo* resistance/susceptibility levels of 14 carnation cultivars to *Fusarium oxysporum* f.sp. *dianthi* race 2, the causal agent of Fusarium wilt disease of carnation, were also expressed in an *in vitro* system and assayed as the degree of fungal colonization of callus cultures at 20°C. Temperature influenced the *in vitro* expression of carnation resistance. An incubation temperature of 27°C increased the colonization of calli derived from both the susceptible ('Corrida' and 'Ambra') and the resistant ('Pulcino' and 'Pallas') cultivars. At 15°C, the colonization of calli derived from Pulcino and Pallas diminished significantly more than for Ambra and Corrida. Inhibition of fungal growth on resistant calli was correlated to retardation in hyphal development. Both scanning electron microscopy and light microscopy observations showed that hyphae did not penetrate into carnation cells.

KEY WORDS: *Fusarium oxysporum* f.sp. *dianthi* race 2; Fusarium wilt; *Dianthus caryophyllus* L.; carnation; *in vitro* plant resistance expression.

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