

ABSTRACT

GENE EXPRESSION PROFILE OF *NICOTIANA TABACUM* PLANTS EXPRESSING *CAENORHABDITIS ELEGANS*' PROGRAMMED CELL DEATH GENES

Tobacco (*Nicotiana tabacum* cv Petite Havana SR2) transgenic plants expressing the *Caenorhabditis elegans* cell death genes *ced-3* and *ced-4* show evidence suggesting that such expression protects the plants from infection by the plant-parasitic (phytoparasitic) nematode *Meloidogyne incognita*. In this study global gene expression profiles for transgenic tobacco plants expressing *ced-3* and *ced-4* were established to propose a mechanism by which protection from nematodes is manifested. We show evidence suggesting that the expression of the *C. elegans* cell death genes *Ced-3* and *Ced-4* induces the plant's pathogenesis-related genes, leading to nematode resistance. Our results suggest that the expression of functional CED-3 and CED-4 may be mimicking the function of and/or interacting with R-proteins in our transgenic tobacco plant, leading to pathogen-specific resistance.

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