

ABSTRACT

EFFECTS OF *CED-9* ANTISENSE EXPRESSION IN TRANSGENIC TOBACCO PLANTS ON *MELOIDOGYNE INCOGNITA*

The possibility of using transgenic plants expressing nematode programmed cell death genes to control nematode infestation in plants was explored because of the urgent necessity of finding alternatives to using pesticides. Knocking down *ced-9*-like genes of plant-parasitic nematodes, using the plants as the delivery method through the application of antisense RNA, may limit nematode proliferation and/or reproduction. The generated transgenic tobacco plants were tested for resistance to *Meloidogyne incognita* (Root-Knot Nematode-RKN) by measuring gall formation, size of galls generated, and juvenile-2(J2) hatching ability. Results from this study suggest that expression of either *ced-9-R* or *ced-9-F* genes in tobacco plants induced prevention of *M. incognita* proliferation. Furthermore, as a unique and novel finding of this study, the *ced-9-R* expressing plants prevent J2 hatching. It is speculated that the specific effects seen in the *ced-9-R* plants are due to action of *ced-9-R* on *ced-9*-like sequences during embryogenesis of *M. incognita*, which results in stimulation of the programmed cell death pathway of the parasitic nematodes, resulting in plant protection.

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May 2009