

ABSTRACT

DISRUPTION OF THE CELL DEATH PROTECTION GENE *CED-9* IN *CAENORHABDITIS ELEGANS* USING RNA INTERFERENCE (RNAI)

Plant-pathogenic nematodes result in substantial damage to agriculture worldwide. Methyl bromide, an environmentally unfriendly compound, is the most useful pesticide for dealing with such nematodes. Plant biotechnology can provide tools to manage nematodes as it has with some insects, and a novel approach could exploit the mechanism of RNA interference (RNAi) to target nematode cell death pathways. Using the free-living nematode *Caenorhabditis elegans*, this research presents evidence that nematode fecundity can be controlled by exposure to dsRNAs in their food and environment. Specifically, dsRNAs targeting the cell death protection gene *ced-9* were shown to be effective at decreasing the fecundity of *C. elegans* by 30%. Furthermore, *Zeldia punctata*, a nematode more closely related to pathogenic species, also showed decreases in fecundity. Therefore, cell death protection genes may prove useful as targets for developing transgenic plants with resistance to plant-pathogenic nematodes.

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