POTENTIAL USE OF INSECT PARASITIC NEMATODES FOR BIOLOGICAL CONTROL OF PESTS

I. GLAZER

Dept. of Nematology, Agricultural Research Organization, The Volcani Center, Bet Dagan 50250, Israel

In recent years particular attention has been focused on biological control using entomoparasitic nematodes from the families Steinernematidae and Heterorhabditidae. These unique parasites possess virtually every desirable attribute of an ideal biological control agent. They are able to parasitize thousands of insect species, including many economic insect pests. This spectrum of activity has stimulated commercial interest in many countries. The infective stages possess unusual virulence, killing insect hosts in 24-48 h. Despite their broad host range and high virulence for insects, extensive testing has demonstrated a lack of mammalian pathogenicity and the U.S. EPA has subsequently exempted these nematodes from registration and regulation requirements. Mass production is easily accomplished with existing technology. Infective stages possess chemoreceptors and mobility, enabling them to seek out even well hidden insects. Finally, in some cases, they provide levels of insect control equivalent to that of chemical insecticides. No other biological control agent possesses a comparable group of attributes.

In the past year, a research program was established in the Dept. of Nematology, ARO, to evaluate the potential use of insect parasitic nematodes in Israel. Laboratory and greenhouse tests have indicated that agriculturally important pests, such as the Egyptian cotton leafworm *Spodoptera littoralis*, the bollworm *Heliothis armigera*, the beetle *Maladera matrida*, and the giant looper *Boarmia selenaria*, are highly susceptible to infection by the nematode.

Application methods were tested for practical use of this biocontrol agent on the plant foliage or in the soil.