Kafrelsheikh University

Faculty of Agriculture

Agricultural Botany Department

UTILIZATION OF SOME MODERN METHODS IN CONTROL OF ROOT-KNOT NEMATODE (*MELOIDOGYNE JAVANICA*) ON EGGPLANT PLANTS

By

Marwa Samir Elsayed Salim

B.Sc.(Plant Pathology), Faculty of Agriculture, Kafrelsheikh, Tanta University,(2004)

M.Sc.(Plant Pathology), Faculty of Agriculture, Kafrelsheikh University,2013

Thesis

Submitted in Partial Fulfillment of the Requirements for the

Degree of

DOCTOR OF PHILOSOPHY

In

Plant Pathology

Agricultural Botany Department

Faculty of Agriculture

Kafrelsheikh University

(2022)

ABSTRACT

Part 1: The reactions of four eggplant cultivars (Anan, 999, Black Beauty and Classic). to root-knot nematode *Meloidogyne javanica* were investigated. Results show that eggplant cv. Classic L. was the most susceptible to *M. javanica*.

Part 2: Utilization of Salicylic acid by immersion and spraying was studied. Results show that immersion was the most effective application way in reduced of number of galls, egg- masses and eggs/root system.

Part 3: Combination of Salicylic acid by immersion and spraying with Mycorrihizin and Ascorbic acid by immersion and spraying with Mycorrihizin was examined. Results show that Mycorrihizin enhanced the effect of Salicylic acid and Ascorbic acid on nematode criteria and some plant growth parameters and the most effect was utilization by immersion.

Part 4: Treatment with silver nanoparticles with Salicylic acid, Ascorbic acid and mycorrihizin were studied. Results revealed that the most effective treatment was silver nanoparticles at concentrations 50, 100 and 150µg/L and Ascorbic acid by immersion with reduction%100% in gall formation of *M. javanica* and achieved high increasing% in plant growth parameters especially in number and weight of fruits/ plant.

Part 5: The effect of silver nanoparticles before transplanting and during transplanting at concentrations 50, 100, 150µg/L were examined on some plant growth parameters and nematode criteria. Results show that silver nanoparticles before transplanting achieved 100% reduction in number of galls, egg- masses, eggs/root system, followed by silver nanoparticles.

List of tables

List of figures