

PROTECTION OF EGYPTIAN COTTON PLANTS, *Gossypium barbadense* BY CERTAIN SOIL ORGANIC AMENDMENTS AGAINST *Meloidogyne incognita*

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ABSTRACT

The aim of this work was to evaluate the potential of certain soil organic matters i.e. poultry or horse manures or dried-leaf powders of periwinkle (*Chatharanthus roseus*) or castor (*Ricinus communis*) in comparison with oxamyl against *Meloidogyne incognita* on Egyptian cotton cv. Giza 45 *in vivo*. Five grams of each soil organic amendments were separately added to cotton seedlings cultivated in pots, as well as oxamyl at the recommended dose, one day before nematode inoculation process. Results revealed that all tested materials significantly improved plant growth parameters and reduced nematode population density, number of galls, females and egg-masses on roots of cotton plants. Of the tested organic matters, poultry manure achieved the highest percentage increase in plant length, shoot dry weight and fresh weight of whole plant with values of 54.4, 74.7 and 37.2%, respectively, followed by periwinkle powder for the first two parameters with values of 51.0 and 65.9%, respectively, whereas, castor powder for the later parameter with value of 44.7% as compared with nematode alone. Moreover, oxamyl treatment ranked first in percentage increase values of shoot dry weight (87.9%) and fresh weight of whole plant (62.5%), respectively, and second to poultry manure treatment with value of plant length (58.0%) comparing to nematode alone. In addition, non-significant differences between all tested organic matters regarding nematode parameters were noticed. However, oxamyl application surpassed them in suppressing nematode population density (68.9%), number of galls (67.6%) and egg-masses (65.8%), respectively, as compared with nematode alone. Meanwhile, among the organic matters tested, pots received poultry manure showed the highest percentage reduction in nematode population density (53.3%), followed by horse manure (51.3%), then periwinkle powder (50.4%), and castor powder (49.4%), as compared with nematode alone. These results demonstrated the potential of such organic matters to protect cotton plant against *M. incognita* under greenhouse conditions.

Keywords: Egyptian cotton cv. Giza 45, *Gossypium barbadense*, *Meloidogyne incognita*, organic amendments, oxamyl, management.

INTRODUCTION

Egyptian cotton plant, *Gossypium barbadense* L. represents the main agricultural national income of the Arab Republic of Egypt. Its total cultivated area in Dakahlia governorate reached to 79,400 feddans with an average of 8.6 Kentar/ feddan for the season of 2006. Several plant parasitic nematodes i.e. the reniform nematode, *Rotylenchulus reniformis* (Salem, 1970), the root-lesion nematode, *Pratylenchus brachyurus* (El-Sherif, 1976), the root-knot nematode, *Meloidogyne incognita* and *R. reniformes* (Starr&Page,1990), and the sting nematode, *Belonolaimus longicaudatus* (Crow *et al.*,1997), were reported as pathogens of cotton plant in many soil types all over the world. The first four nematode species are widely found in the cultivated cotton