Short Communication

Interactive Association of fungus and root-knot nematodes on Sarnalli crop (*Ipomea Reptans*)

Archana U Singh
Division of Nematology, ICAR-IARI, New Delhi-12

Plants develop close association with many soil microorganisms especially with fungi and nematodes under field conditions that are either beneficial or harmful to plants. (Goswami et al., 2000) The fungus nematode interactions are numerous, varied and provide open field for significant research. (Goswami and Mittal, 2002) Fungus is an essential component of the interacting system of fungus—nematode complex disease and plays an important role in the disease etiology. Since the publication of Atkinson's report (1892) that *Fusarium* wilt of cotton was more severe in the presence of root-knot nematode (*Meloidogyne* spp.) than in its absence, a large volume of data has been accumulated to date which firmly establishes the involvement of plant-parasitic nematodes in interactions with fungal plant pathogens on various crop plants. (Mittal and Goswami, 2002) In the present paper an attempt has been made to study the fungi associated with root-knot nematodes from trans-Yamuna river belt of Delhi infecting Sarnalli crop (*Ipomea reptans*).

Sarnalli is a very popular leafy vegetable belonging to Family Basellaceae and eaten in Bihar, West Bengal, Orissa and North eastern states. This leafy vegetable like Palak (*Spinach spp*.), Poi (*Basella rubra*) and Chaulai (*Chinopodium alba*) is very rich in minerals, vitamins A and C. It also supply the essential roughage required in our daily diet. During a survey in trans-Yamuna river belt of Delhi ten soil and root samples were collected from Sarnalli crop and processed for nematode and fungi associated with this vegetable. In the present investigation, soil and root samples were analysed for nematodes as well as fungi. On closer examination, the roots were found to be heavily galled with root-knot nematode which on the basis of perineal pattern was identified as *Meloidogyne incognita* (Kofoid & White, 1919) Chitwood, 1949. Several soil fungi were found to be consistently associated with rhizosphere and egg-masses of root-knot nematode on Sarnalli crop. The eggmasses were handpicked and transferred to sterile water and then examined under stereoscopic microscope. These egg-masses were surface sterilized with 0.1% mercuric choride for 20 seconds twice and then, washed again in sterile water. The eggmasses were transferred in Potato Dextrose Agar slants and incubated at 25 $\pm$ 2 C for 10-15 days while the soil fungi were processed with soil dilution plate method. The fungal colonies thus appeared were isolated, purified and identified. Thus, on an average 3.7 J_2 of *Meloidogyne incognita* per g soil was found along with a number of fungal bioagents like *Chaetomium indicum, Alternaria alternate, Aspergillus niger, Rhizoctonia solani, Rhizopus, Penicillium citrinum* isolated from the rhizosphere of root-knot infected Sarnalli crop by soil dilution plate method. *Penicillium crysogem* and *Graphium* spp. was found from the eggmasses of root-knot nematode. This is the first record of interactive association of *Meloidogyne incognita* infestation and fungi on leafy vegetable like Sarnalli crop. The root knot interaction with fungi associated on Sarnalli crop needs further extensive studies to ascertain the role of each organism individually and in combination on plant growth and yield.

REFERENCES

[1] Atkinson, G. F (1892) Some diseases of cotton 3 Frenching. *Bull. Ala. Agric. Exp. Stn*. 41: 19-29.

[2] Goswami, B. K., Mittal, A and Singh, S (2000) Conducive role of *Fusarium solani* and suppressive role of different fungi associated with root-knot nematode infecting brinjal around Yamuna-river belt in Delhi. *Indian Phytopath*. 54(3): 385-386.

[3] Goswami, B. K. and Mittal, A. (2002) Studies on the effect of some fungal bioagents against root-knot nematode, *Meloidogyne incognita* infecting brinjal. *Pak J. Nematol*. 20 (1): 55-59.

[4] Mittal, A and Goswami, B. K (2002) Effect of culture filtrates of different species of *Aspergillus* on the mortality and hatching of *Meloidogyne incognita*. *J. Mycol. Pl. Pathol*.34 (2): 281-282