Visualization of Interaction between Pochonia Chlamydosporia and Meloidogyne Incognita and Their Impact on Tomato Crop

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Abstract : The bio control potential and mechanism of P. chlamydosporia against Meloidogyne incognita was evaluated in the present study. Under invitro conditions, P. chlamydosporia was tested for parasitism of eggs and females of M. incognita. The results indicated that this fungus parasitized 87% eggs and 82% females. Culture filtrate (CF) of P. chlamydosporia was tested for its larvicide activity against M. incognita 2nd stage juvenile. The maximum mortality was 97.3% at 100% concentration of the culture filtrate while minimum mortality was 7.3% in 25% concentration after 24 hrs. The result of the pot experiment proved that P. chlamydosporia has reduced the incidence of RKN and improved all tested agronomic growth parameters. The treatment with inoculated M. incognita alone reduced plant height, fresh shoot, and fresh root weight by 44.7%, 29.8%, and 32.8% respectively over uninoculated healthy control. Histopathological studies on the interaction of Pochonia chlamydosporia and Meloidogyne incognita on tomato roots revealed anatomical changes among treatments. Less number of galls with small in size and scarcer abnormalities in the vascular cylinder was observed in plants inoculated with P. chlamydosporia and M. incognita than the plants treated with nematode only. The fungus was seen in in the intercellular spaces of cortical and epidermal cells while the vascular bundles of the plant remain intact, inoculated only with P. chlamydosporia. In the infected roots, many mature females were seen which feed on giant cells. The findings also revealed that control healthy plants were not affected and no histological changes were noted.

Keywords : histopathology, Pochonia chlamydosporia, Meloidogyne incognita, tomato

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