Abstract of Thesis

The nematophagous fungus *Pochonia chlamydosporia* Goddard is a potential bio-agent agent of root-knot nematode. It is a wide spread bio-control fungus of *Heterodera* spp. strains of *Pochonia chlamydosporia* isolated were identified as *P. chlamydosporia* by non-transcribed sequences like the intergenic spacers (IGS) amplification by IGS1 and IGS2 primers and also by amplification of ITS regions through the use of universal primers.

The detection of the presence of β-tubulin gene in *P. chlamydosporia* by Polymerase chain reaction method proved to be very significant as the role of β tubulin gene is very important as far as bio-control activity and fungicides are concerned. The region of the β-tubulin gene imparts resistance to benizamidazole fungicides. The β-tubulin gene was implicated in imparting resistance to the fungicides used in the semi-selective medium (SSM), and this helped in its isolation.

The disease complex produced by *Meliodogyne incognita* and *Fusarium oxysporum* f.sp. *vasinfectum* is a serious melody of okra. Single bio-agent may not be effective in the management of the disease complex.

Hence the trails were conducted to develop bio-management methods of disease complex in okra using *Pochonia chlamydosporia* and *Pseudomonas fluorescens* under field conditions.
P. fluorescens has been reported to be effective against Fusarium oxysporum in tomato (Benhamou et al., 1996). It was also found to be an effective bio-control agent of nematodes.

We found that both P. fluorescens and P. chlamydosporia were compatible through in vitro studies (Table no.5.5) and in screen house conditions. (Table No.5.15) Further combined application of both P. fluorescens and P. chlamydosporia found to be highly effective in the management of disease complex in okra. This is a unique finding where in for the first time we used two bio-agents in okra disease complex management in okra under screen house and field conditions.

Application of neem cake enriched with P. fluorescens and P. chlamydosporia was found to be very effective in okra disease complex management under field conditions (Table No.5.16). There was a significant reduction in disease and nematode incidence and these treatments resulted in the significant increase in the yield of the crop (Table No.5.17).

First time in India, we standardized a bio-intensive strategy for management of this disease complex on okra only through the use of bio-pesticides and botanicals.