

Keadsinee Sripai 2012: Biology of Root - Knot Nematode, *Meloidogyne javanica*, in Tomato and Biological Control by Antagonistic Hungarian Oyster Mushroom (*Pleurotus ostreatus*)
Master of Science (Plant Pathology), Major Field: Plant Pathology, Department of Plant Pathology.
Thesis Advisor: Associate Professor Somchai Sukhakul, M.S. 55 pages.

Life cycle of root – knot nematode *Meloidogyne javanica* in tomato cv. Sidatip 4 revealed that the second – stage juveniles began to penetrate tomato root around the zone of cell elongation after inoculation for 6 hours and infected their head in the vascular tissue while the rest of their body were in the cortex parallel with the longitudinal axis of the root. The second – stage juvenile molted for three times until they became the adult. Most of them were female embedded in root gall. Female laid their eggs in gelatinous matrix at 26 days after inoculation and juveniles were observed in the eggs at 38 days after inoculation. Therefore, *M. javanica* spent 38 days to complete its life cycle in tomato cv. Sidatip 4 at KU. KPS. greenhouse, Nakhon Pathom province.

Pathogenicity of *M. javanica* and *M. incognita* on tomato cv. Sidatip 4 revealed that the highest root gall number, 274.29 galls per plant showed in the treatment of mixed species (*M. javanica* + *M. incognita*). Treatment of *M. incognita* alone and *M. javanica* alone showed the root gall number 260.86 galls and 187.86 galls per plant respectively.

Egg mass hatching of *M. javanica* were inhibited in the culture of antagonistic Hungarian oyster mushroom, *Pleurotus ostreatus* isolate Po3, on water agar. The highest percentage of hatching inhibition was 53.93 at 24 hours after the egg mass were put on the edge of *P. ostreatus* culture.

The filtrate from soaking spent mushroom of Po3 in distilled water (1 : 2 w/ v) for three days significantly reduced egg mass hatching after submerged egg mass in filtrate for three days. The highest percentage of hatching inhibition was 97.74 in 50 and 100% concentrations of filtrate.

Using spent mushroom of antagonistic Hungarian oyster mushroom, *P. ostreatus* isolate Po3, for controlling root gall disease of tomato cv. Sidatip 4 by mixing spent mushroom with sterilized soil at the rates of 15 and 30% by weight significantly reduced root gall numbers caused by *M. javanica* and *M. incognita*. The percentages of disease suppression were between 47 – 71 when compared with the control treatment.

Student's signature

Thesis Advisor's signature