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Determination of lethal concentrations and lethal time of entomopathogenic nematodes against shoot borer (*Conogethes punctiferalis* Guen.)

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ABSTRACT: Study on the pathogenicity of entomopathogenic nematodes, *Heterorhabditis* sp. (IISR-EPN 01), *Steinernema* sp. (IISR-EPN 02), *Oscheius* sp. (IISR-EPN 08) and *O. gingeri* against shoot borer larva, *C. punctiferalis* (SBL) by dose response and time exposure assay and determination of lethal concentrations and lethal time by regression analysis. Lethal concentrations (LC_{50}) were calculated using five densities of test EPNs *i.e.* 0, 25, 50, 75 and 100 IJs/SBL at 72 h. Lethal time (LT_{50}) was calculated using one nematode density 100 IJs to mortality of SBL at 24, 48 and 72h. Although the shoot borer larva was susceptible to test EPNs, there were differences among these EPNs in their ability to kill the insect. Among the test EPNs, *Steinernema* sp. (IISR-EPN 02) and *O. gingeri* appears to be the most promising. The percent mortality of SBL increases with the increase the concentrations of IJs as well as exposure time. A positive correlation was found between concentrations as well as exposure time and mortality. Probit mortality indicated that, *Oscheius* sp. (IISR-EPN 08) required less number (48 IJs/larva), whereas *Steinernema* sp. (IISR-EPN 02) took less time (29 h) for bringing desired mortality of SBL. This study will be helpful in the shoot borer management in future.

Key Words: Entomopathogenic nematodes, LC_{50}, LT_{90}, shoot borer, *Conogethe punctiferalis*.