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Survival analysis of infective juveniles of Pakistani EPN strains (Steinernematidae and Heterorhabditidae) for mass production

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Abstract

Laboratory investigations were carried out to study the survival of entomopathogenic nematodes of the genera *Steinernema* and *Heterorhabditis* of eight Pakistani species viz., *Steinernema pakistanense, S. asiaticum*, *S. abbasi*, *S. siamkayai, S. carpocapsae*, *S. feltiae*, *Heterorhabditis indica* and *H. bacteriophora* at different time durations and temperatures in distilled water. Effect of soil medium and different temperatures on survival of IJs in infected cadavers was also observed. When time period increased both species of steinernematids and heterorhabditids at room temperature showed static behaviour. At room temperature after 30 days 90±1.5, 67±2.0, 65±1.0, 75±1.0, 57±1.5, 15±2.0, 60±1.5 and 62±1.0 IJs of all species remained active. As time period passed the activeness of *S. feltiae* ceased at 32±2 °C. Freshly harvested IJs of eight Pakistani species of entomopathogenic nematodes were exposed to four different temperatures viz., 20±2, 25±2, 32±2 and 38±2 °C. *S. pakistanense* found to be most temperature tolerable species. In soil medium, after 2-6 weeks high proportion of infective juveniles were found viable except *S. feltiae*, may be due to exposure of temperature none of the IJs viable at the entire period. Effect of four different temperatures on survival of IJs in infected cadavers showed that IJs failed to produce at 20±2 and 25±2 °C and survived at 32±2 and 38±2 °C. For continual commercialization of these nematodes in the field, it is important to examine the behaviour and survival of IJs at extreme environmental conditions because specific survival mechanisms employed by different species of EPN.