ABSTRACT

Survey for entomopathogenic nematodes (EPNs) was conducted in ten districts of Himachal Pradesh during 2011-13. In all, 930 soil samples from 131 locations were analysed for the occurrence of the nematodes. The frequency of occurrence of these nematodes was very low (3.82%). The nematodes were found in five locations i.e. Sangla (Distt. Kinnaur), Kamand (Distt. Kullu), Rajgarh (Distt Sirmour), Rajour and Sutkar (Distt. Chamba). These localities are situated in mid hill/high hill zones of the state. The nematodes were recovered from fruit orchards only having lighter soils. The nematodes from all the locations were identified as *Heterorhabditis*. Nematode cultures from different locations were considered as isolates and were designated as ‘Sangla isolate, ‘Kamand isolate’, ‘Rajgarh isolate’, ‘Sutkar isolate’ and ‘Rajour isolate’. Former three isolates, along with one commercial isolate i.e. *H. indica* (procured from NBAII, Bangluru) were evaluated for their pathogenic effects against *Spodoptera litura, Helicoverpa armigera, Plutella xylostella* and *Agrotis segetum* in Petri plates/soil/screen house. All these three local isolates including the commercial isolate proved pathogenic variably to different insect-pests. In screen house testing on cabbage, ‘Rajgarh isolate’ was found highly effective against *S. litura, H. armigera* and *P. xylostella*. The virulence of these isolates was considered of the medium level. The bacterium, *Photorhabdus luminescence* was associated with all the isolates and proved non pathogenic to *Achroia grisella* when tested alone. Besides, host invasion studies in *A. grisella* revealed maximum penetration through natural openings, other than mouth. For *in vivo* mass production of local EPNs, *Corcyra cephalonica, A. grisella* and *Bombyx mori* were used. The average yield of IJs/larva was minimum (23020-26030) in *C. cephalonica* and maximum in *B. mori* (463080-546840) for different EPNs. For *in vitro* production, chicken offal medium was used. The yield was maximum for ‘Rajgarh isolate’ (17.70 x 10^6 IJs/flask).