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Influence of Temperature on the Development and Feeding Activity of Southern Green Stink Bug Nezara viridula (Heteroptera: Pentatomidae)

Authors : Pavitra Sharma, A. K. Singh

Abstract : The establishment of pest population in a habitat is greatly influenced by abiotic factors, such as temperature, photoperiod, and humidity. These factors influence the biology and behavior of insects and their pest status. Nezara viridula (Heteroptera: Pentatomidae), commonly known as southern green stink bug, is economically important pest of legumes. Both nymphs and adult suck the sap from different part of the plant and deteriorate the standing crop. Present study involves effects of temperature on incubation, hatching success and nymphal duration of N. viridula. The results indicated that the development of eggs requires optimal temperature range. Temperature conditions above and below the optimum range affect the incubation period as well as the percent hatchability of eggs. At 19°C, the egg incubation period was longest whereas it was shortest at 27°C. The change in temperature from the optimum condition also affected the hatchability of eggs in N. viridula. Decrease in the hatchability was observed with the decrease in temperature. However, the results were not statistically significant. Decrease in temperature from the optimum temperature to 19°C, also resulted in an increase in nymphal duration of N. viridula. However, no such effect of temperature within the studied range was observed on the morphology of nymphs or adults. Variation in temperature also had no adverse effects on the survival of laboratory bred population of Nezara nymphs. The feeding activity of the bug in relation to photoperiod was assessed by counting the number of punctures on the food surface. The results indicated that day-night regime did not affect the feeding activity of the bug significantly. The present study enhances our knowledge about the effect of environmental factors on the biology of insects and developing the strategy for 'Integrated Pest Management' of hemipteran insects by management of the physical factors.

Keywords : development, feeding, hatchability, Nezara viridula
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