World Academy of Science, Engineering and Technology
International Journal of Agricultural and Biosystems Engineering
Vol:9, No:05, 2015

Effectiveness of Diflubenzuron (DIMILIN) on Various Biological Stages and Behavior of Anthocoris nemoralis (F.) (Hemiptera, anthocoridae) Under Laboratory Conditions

Authors : Baboo Ali, Avni Ugur

Abstract : Pesticide namely, Diflubenzuron, is tremendously used in pear orchards against different insect pests of pear fruit trees in Turkey. The predatory bug, Anthocoris nemoralis (F.) is found in pear orchard feeding on Cacopsylla pyri (L.) (Homoptera: Psyllidae), is an insect pest of pear fruit trees. In this study, the effectiveness of the above mentioned pesticide on various biological stages of predatory bug were investigated under laboratory conditions of 25±1˚C, 75±5% RH, and photoperiod of 16L: 8D h. Newly emerged 1st, 2nd, 3rd, 4th and 5th instars as well as the female and male stages of the predatory bug were placed on treated petri dishes and their mortality was checked after every 24 hours till the survival of the last individual. Prey consumption of surviving instars as well as the adult stages was determined simultaneously. All biological stages of the predatory bug were fed with eggs of Ephestia kuehniella during the whole research work. Percent hatch of treated eggs was recorded after every 24 hours, and the behavioral test of the male and female stages against Diflubenzuron was also determined using Y-tube olfactometer. Consequently, the mortality rate of 1st, 2nd, 3rd, 4th, and 5th instars was 61.32 %, 67.50%, 74. 91%, 80.11%, and 83.04%, respectively. In case of male and female stages, it has been recorded as 95.47% and 95.50%, respectively. Thus, a significant difference was not found between female and male mortality rates. Prey consumption of 1st, 2nd, 3rd, 4th and 5th surviving instars was noted as 8.01, 11. 72, 13.24, 16.93 and 20.49 number of eggs/day while in females and males, it was 12.05 and 12.71 number of eggs/day, respectively. Hatching ratio of treated eggs of predator was 25.32±4.08. As far as the behavioral test is concerned, it has been indicated that Diflubenzuron has 65% repellent effect on the newly emerged male and female stages of the predatory bug while using Y-tube olfactometer under laboratory conditions.

Keywords : behavior, biological stages, diflubenzuron, effectiveness, pesticide, predatory bug
Conference Title : ICAFUS 2015 : International Conference on Agriculture, Food and Urbanizing Society
Conference Location : Amsterdam, Netherlands
Conference Dates : May 14-15, 2015