Abstract

The use of insecticides and herbicides is increasing very rapidly in agriculture and pisciculture in order to control unwanted insects and weeds. Diazinon and carbaryl are commonly used insecticides in Sistan to eradicate insect pests. Rotifers, especially *Brachionus calyciflorus* and *B. plicatilis* are among the most favourable test animals in aquatic toxicology. In this study, effects of different concentrations of diazinon and carbaryl on growth and reproduction of the rotifer *B.calyciflorus* Isolated from Sistan's water resourses were studied by 7-d tests. We quantified the population level responses of *Brachionus caluciflorus* exposed separately to five different concentrations of diazinon (0.02, 0.2, 2.5, 5 and 10 ppm), and carbaryl (1, 10, 100, 200, and 400 ppb) at 25±1 ˚c and under an algal food density of 1-1.5 × 10^6 cells/ml of *Chlorella vulgaris*. We derived population density (per day), population growth rate (r), ratio ovogerous female to non-ovigerous females, ratio mictic females to amictic females and hatching rate of resting eggs in both controls and in pesticide treatments. The results showed that Compared to controls both diazinon at 0.02- 0.2 ppm and carbaryl at all tested concentrations in all tested days decreased the population density and specific growth rate. Diazinon at 0.02- 0.2 ppm and carbaryl at all tested concentration increased both ratio ovigerous females/ non-ovigerous females and mictic females/ amictic females. Diazinon at 0.02- 0.2 ppm and carbaryl at all tested concentrations decreased the hatching rate of resting eggs of rotifers.

Key words: Diazinon, Carbaryl, rotifer, *Brachionus calyciflorus*, specific growth rate

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Effect of Diazinon and Carbaryl on growth and reproduction of freshwater rotifer (*Brachionus calyciflorus*) isolated from Sistan's water resources

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