

Turkish Journal of Zoology

Turkish Journal
of
Zoology

Effects of Some DNA Gyrase Inhibitors on the Survival and Development of *Pimpla turionellae*
(Hymenoptera: Ichneumonidae) Larvae Reared on an Artificial Diet

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Abstract: The effects of novobiocin, nalidixic and oxolinic acids, which are potent antibacterial agents, on the survival and development of the hymenopterous endoparasitoid *Pimpla turionellae* L. were investigated alone by rearing the larvae aseptically on chemically defined synthetic diets. The percentage of fifth instar larvae was not significantly affected by the diets with different levels of the antibiotics used in the study. A diet containing the lowest level of novobiocin significantly increased the yields of pupae and adults. This level also significantly shortened the developmental time for fifth instar, but had no significant effect on the complete development of the larvae up to adult emergence. Oxolinic acid at the lowest level had no effect on survival, but prolonged the development of the insect. In general, the rate of development was significantly increased and survival was decreased with high levels of the antibiotics used in the study. However, nalidixic acid at all tested levels caused a striking decrease in survival. These results suggest the dietary compatibility of novobiocin and, to some extent, oxolinic acid at the lowest tested level with the artificial rearing of the insect for biological control.

Key Words: *Pimpla turionellae*, novobiocin, nutrition, survival, development

Turk. J. Zool., **26**, (2002), 121-126.

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