

Effect of Host Diet on the Development of the Solitary Egg-Larval Parasitoid *Chelonus oculator* in Superparasitized *Ephestia kuehniella*

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Effect of host diet on the development time, mortality and adult size of the solitary koinobiont egg-larval parasitoid *Chelonus oculator* (Panzer) (Hymenoptera: Braconidae), was examined in superparasitized *Ephestia kuehniella* Zeller (Lepidoptera: Pyralidae). The experiment at a tritrophic level was conducted at $25\pm 1^\circ\text{C}$, 60–70% relative humidity. Eggs of *E. kuehniella* were parasitized one, two and three times by the parasitoid, and the hosts containing different numbers of parasitoid eggs were reared in two different host diets. As host diets, a 2:1 mixture of wheat flour and rough wheat bran (HD1) and a 2:1:0.25:0.50:0.25:0.25 mixture of rough wheat bran, corn flour, dry yeast, honey, milk powder, glycerin (HD2) were used. Unlike in the HD1 treatment, development times of the parasitoid were significantly affected by the number of eggs per host in the HD2 treatment. In addition, all development times of the parasitoid in the HD2 treatment were found to be significantly shorter than those of the parasitoid in the HD1 treatment. The mortality of the parasitoid was similar on both host diets, regardless of the number of eggs per host. However, superparasitism decreased the parasitoid eclosion in both host diet treatments. As well as mortality, when the size of the adult parasitoid was not affected by the host diet differences with the same number of eggs per host, superparasitism significantly decreased the size of the parasitoid in both host diet treatments. The findings of this investigation confirm that there is a significant interaction between host diet and the third trophic level, the parasitoid. Thus, effects of host diets at tritrophic levels should be incorporated into models of superparasitism.

KEY WORDS: Host diet-parasitoid; tritrophic level; superparasitism; *Chelonus oculator*; egg-larval parasitoid; *Ephestia kuehniella*.

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