

## Abstract

Several *Mussidia* species occur in West and East Africa, but only the ear-borer, *Mussidia nigrivenella* Ragonot (Lepidoptera: Pyralidae), has attained economic pest status in West Africa. During recent surveys in Kenya several parasitoid species were recovered from *Mussidia* species, including the egg parasitoid, *Trichogrammatoide* sp. nr *lutea* Girault (Hymenoptera: Trichogrammatoidea). This parasitoid species is considered a potential biocontrol agent for *M. nigrivenella* in West Africa and development of a successful rearing system for its host, *M. fiorii*, will enable the mass production of this natural enemy species. The suitability of five artificial diets for the development of *M. fiorii* as well as optimum rearing conditions were evaluated in the laboratory. The effect of temperature and humidity on the development of *M. fiorii* was also studied. *Mussidia fiorii* successfully developed on maize leaf-, maize seed and *Canavalia ensiformes* seed-based diets. The lower developmental thresholds for the egg, larvae, pupae, and egg to adult were  $12.8 \pm 0.25$  °C,  $14.4 \pm 0.27$  °C,  $11.0 \pm 0.03$  °C and  $13.5 \pm 0.21$  °C, respectively, while the thermal constants were  $82.0 \pm 1.61$ ,  $384.6 \pm 9.4$ ,  $144.9 \pm 6.8$  and  $588.2 \pm 10.8$  degree-days, respectively. Information on dietary and thermal requirements will be used to optimize mass production of the host and natural enemies.