

# International Journal of Tropical Insect Science

- [International Journal of Tropical Insect Science](#) / Volume 25 / Issue 01 / March 2005, pp 12-18
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- DOI: <http://dx.doi.org/10.1079/IJT200549> ([About DOI](#)), Published online: 28 February 2007

## Research Article

### Location of stemborer pupae in various host plants and implications for the performance of natural enemies with emphasis on the pupal parasitoid *Xanthopimpla stemmator* (Hymenoptera: Ichneumonidae)

J.J. Muturi<sup>a1a2</sup>, A.J. Ngi-Song<sup>a1</sup>, F. Schulthess<sup>a1</sup> [c1](#), J.M. Mueke<sup>a2</sup> and M. Sétamou<sup>a1</sup>

<sup>a1</sup> International Centre of Insect Physiology and Ecology, PO Box 30772, Nairobi, Kenya

<sup>a2</sup> Department of Zoology, Kenyatta University, PO Box 43844, Nairobi, Kenya

## Abstract

In order to predict host accessibility by the pupal parasitoid *Xanthopimpla stemmator* (Thunberg), four grass species (*Sorghum bicolor*, *Pennisetum purpureum*, *Sorghum arundinaceum* and *Zea mays*) were sampled for stemborer pupae in Kwale, in the low altitudes of southern Kenya, and in Trans-Nzoia, in the high altitudes of western Kenya. The pupal position of *Chilo orichalcociliellus* (Strand), *Chilo partellus* (Swinhoe), *Sesamia calamistis* Hampson, *Sesamia* sp. nr *oriaula* (Tams and Bowden) and *Busseola fusca* (Fuller) in the plant were determined in relation to (a) the distance of pupae from the edge of the stem (depth), (b) the distance between the moth-exit hole and the head of the pupa (location) and (c) the length of the tunnel from the moth-exit hole to the base of the tunnel. Pupal depth and location for *C. partellus* and *B. fusca* varied significantly in the different plant species tested, and the pupae tended to be embedded deeper in cultivated than wild hosts. On all host species, the borers were located at a depth less than 0.35 cm. Most *C. orichalcociliellus* and *S. calamistis* pupae were found pupating in the ears of maize or the upper part of the wild hosts' stem. *Sesamia* sp. nr *oriaula* was only collected from the lower parts of *P. purpureum*. For *B. fusca*, tunnel length varied significantly among plant species and was longer in cultivated hosts. *Xanthopimpla stemmator* has an ovipositor length of about 0.52 cm, thus it is anticipated that the parasitoid could easily reach and parasitize the pupae in these host species.

(Accepted December 03 2004)

Keywords

- [wild and cultivated host plants;](#)
- [pupal location;](#)
- [Chilo;](#)
- [Sesamia;](#)
- [Busseola fusca;](#)
- [Xanthopimpla stemmator;](#)
- [Kenya](#)