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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)

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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.

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Keywords

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