

Abstract

Acanthoscelides obtectus (Say) (Col.: Bruchidae) and *Zabrotes subfasciatus* (Boheman) (Col.: Bruchidae) are the major post harvest pests of dry beans in Latin America. Breeding of resistant bean varieties has been successful against *Z. subfasciatus*, but these varieties remain susceptible to *A. obtectus*. The aim of this study was to find a biological control against *A. obtectus*, and to test whether this control method could be part of an IPM system, integrating resistant bean varieties and parasitoids.

1. The longevity and the progeny production of three larval/pupal ectoparasitoids of *A. obtectus* were evaluated, with and without food source. *Dinarmus basalis* Ashmead (Hym.: Pteromalidae) produced the highest number of progeny and had the longest reproductive lifespan, making it the most promising agent for the control of *A. obtectus* compared to *Anisopteromalus calandrae* (Howard) (Hym.: Pteromalidae) and *Heterospilus prosopidis* (Viereck) (Hym.: Braconidae). Honey given as a food supplement to the synovigenic species *D. basalis* and *A. calandrae* increased their lifetime progeny production through an increased reproductive lifespan, while in the proovigenic species *H. prosopidis* consumption of honey resulted in a higher number of progeny through an increased daily oviposition rather than an increased oviposition period.

2. Over a period of three years, samples of recently harvested beans were taken from small-scale farms in Restrepo, Valle de Cauca, Colombia. The level of infestation by *A. obtectus* was found to be low, but consistent over this period. At harvest time 90% of the bean samples were infested by the weevil. Based on emergence data it can be concluded that oviposition by *A. obtectus* in the field had been restricted to a very short period before harvest. The only parasitoid which emerged was *Horismenus ashmeadii* (Dalla Torre) (Hym.: Eulophidae), being recorded from 21% of the samples. The samples in which the parasitoid was found carried an average of 5 parasitoids per 1000 beans, with a maximum of 12 parasitoids. During 16 weeks of storage, two weevil generations emerged causing visible damage ranging from 0.5 to 34% of the beans (average of 14%). (Abstract shortened by

UMI.)