

A CONTROLLING EFFECT OF A JUVENILE HORMONE ANALOGUE  
ON *EPHESTIA CAUTELLA* (WLK.) BY NON-DIRECT APPLICATION

M. GONEN and A. SCHWARTZ  
Division of Stored Products  
Agricultural Research Organization  
The Volcani Center, P.O. Box 6  
Bet Dagan, ISRAEL

**INTRODUCTION:** The effects and feasibility of juvenile hormones (JH) and of juvenile hormones analogues (JHA) as control agents for stored product insects has been extensively studied and reviewed (3, 4, 5, 6, 15; for more references, see 13). The insect specificity revealed by these control agents, the non-toxicity to warm-blooded animals (1), and their non-toxic degradation products (12), offer some advantages especially where toxic insecticide residues are of great significance, e.g. in stored food. Some of the main difficulties in using JHA for the control of stored product insects stems from two facts:

(a) The insects comprising the multi-species community that is usually associated with stored products differ in their susceptibility (13, 14, 16);

(b) The different species differ also in their behaviour and distribution within a grain bulk or a stack of bags--a fact that complicates even more the logic of JHA application.

One of the most common stored product pests, against which some JHA have been shown to be effective, is the almond moth, *Ephestia cautella* (Wlk.). The efficiency of controlling *E. cautella*, as well as other stored product moths with JHA, has been demonstrated mainly by mixing the JHA with the food substrate (3, 4, 5, 14). Another possible approach could be to take advantage of a fundamental biological difference between *E. cautella* and most other stored product insects, i.e., the fact that the fully grown larvae, as well as the deposited eggs of *E. cautella*, come in contact with the surface of the infested bulk.

The purpose of these experiments was, therefore, to evaluate the effectiveness of a JHA for the control of *E. cautella* experimental populations that either received direct sprays or were brought into contact with previously treated surfaces.

**MATERIALS AND METHODS:** The insects were reared on ground wheat (12% m.c.) mixed with glycerin (12% w/w). Rearing and experimental conditions, unless otherwise specified, were  $26 \pm 1^\circ\text{C}$  and  $70 \pm 5\%$  R.H.