

Trypsin Inhibitor from *Adenanthera pavonina* Seeds: Effect on *Anticarsia gemmatalis* Larval Development

Silva, D.S.¹, Ramos, V.S.¹, Macedo, M.L.R.^{1,2}.

¹Departamento de Bioquímica, UNICAMP, Campinas, SP. ²DTA, UFMS, Campo Grande, MS.

Proteinase inhibitors (PIs) are anti-metabolic proteins, which interfere with the digestive process of insects. It is one of the important defense strategies existing in plants against predators. The velvetbean caterpillar *Anticarsia gemmatalis* remains as a key pest of soybean in warm climates. In this report, the pure inhibitor from seeds of *A. pavonina* – APTI was monitoring by an insect bioassay its toxic activity toward *A. gemmatalis*. The inhibitor has been purified through chromatography. The insects were cold immobilized, dissected, and the midguts were surgically removed from the larvae and placed in iso-osmotic saline. Midgut tissue homogenates were centrifuged and the supernatants were used as enzyme sources. Trypsin-like activity present in the midguts was determined by using BApNA as substrate. The effect of APTI on the development of *A. gemmatalis* was assessed by determining the number and mass of surviving larvae (fourth instars) fed on an artificial diet-containing APTI a concentration of 0.5% (w/w). *In vitro* experiments showed that *A. gemmatalis* larvae trypsin-like enzymes were clearly inhibited by APTI. The ingestion of APTI at a concentration of 0.5% no caused a significant reduction in the survival of the larvae of *A. gemmatalis*, and promotes a 17% reduction in the average weight of the larvae. The level the trypsin was significantly decreased in the midgut and in feces of larvae reared on a diet containing 0.5% APTI. Additional studies with this inhibitor developed to better understanding this protein in relation to development of *Anticarsia gemmatalis*. Supported by: FUNDECT, CNPq and CAPES. Keywords: *Adenanthera pavonina*, *Anticarsia gemmatalis*, Proteinase inhibitor.