

## Effects of Talisin intake, a plant reserve protein, on *Spodoptera frugiperda* Larvae for Two Consecutive Generations

OLIVEIRA, C.T.<sup>1</sup>; MACEDO, M.L.R.<sup>1</sup>

<sup>1</sup>LPPFB, UTASP, CCBS, UFMS, MS, Brazil

**INTRODUCTION:** Talisin is a storage protein from *Talisia esculenta* seeds that presents lectin-like and peptidase inhibitor properties. When chronically ingested, at the first generation, Talisin causes a decrease in the first generation larval weight and reduces the activity of trypsin-like enzymes of *Spodoptera frugiperda* larvae, an important agricultural pest worldwide that presents a remarkable adaptative capacity to the peptidase inhibitors. **OBJECTIVE:** In this work, we evaluate the effects of Talisin intake in the second generation larvae. **MATERIAL AND METHODS:** Talisin was purified by gel filtration (Sephadex G-100 column) and incorporated at 0.5% (w/w) into artificial diet. Neonate larvae were chronically fed with Talisin for two consecutive generations. The larvae from control group was fed with Talisin-free diet. Larval weight, survival, trypsin-like and chymotrypsin-like activities were accessed at fifth instar. We also evaluated the sensitivity of trypsin midgut enzymes to inhibition by Talisin through an inhibition curve using increasing concentrations of Talisin (0-0.7µg/µL). **RESULTS AND DISCUSSION:** Talisin reduced the larval weight in both generations. However, the reduction on larval weight was significantly higher in larvae fed with Talisin for two consecutive generations. No effect on survival rate and chymotrypsin activity was noticed. In the first generation, Talisin fed-larvae had a reduction in trypsin activity of 48%, while in the second generation the trypsin activity was 27% lower than control group. Further assays revealed that Talisin-fed larvae presented trypsin resistant to inhibition by Talisin, possibly by the production of resistant trypsins. **CONCLUSION:** Talisin continues to cause a decrease in larval weight and to affect the activity of trypsin-like enzymes on the second generation, however, an alteration on sensitivity of trypsin-like activity suggests an attempt of *S. frugiperda* larvae to adapt to Talisin.

Key-Words: Insect-plant interaction, protein, plant defense  
Supported by: FUNDECT, CNPq, FINEP and CAPES