

The Effect of Lufenuron, Chitin Synthesis Inhibitor, on Oogenesis of *Rhodnius prolixus*

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In insect, chitin, a polymer of the N-acetyl-D-glucosamine (GluNAc), is well studied as a component of peritrophic matrix and cuticle. However, there are few reports about the presence of chitin in insect ovaries and eggs, as described in *Tribolium castaneum*, *Drosophila melanogaster* and *Aedes aegypti*. The aim of this work was investigated the effect of lufenuron, chitin synthesis inhibitor on the oogenesis of *Rhodnius prolixus*. The injection of lufenuron, into metatorax cavity of insect 24h after blood meal, decreased the oviposition when compared to control. It was also observed on the oogenesis that lufenuron induced altering in the size of oocytes and the number of chorionated and atresic oocytes. The eggs have been laid by lufenuron treated females, changed original colour, misshaped and dehydrated seven days after oviposition. The rate of egg hatching and viability of nymphs were monitored. To confirm the presence of chitin in *Rhodnius prolixus* ovaries, a KOH insoluble white substance was extracted and analyzed by infrared and proton NMR spectra compared standard commercial chitin. This supposed chitin, also obtained from eggshell, was hydrolyzed in acid and a major product was recognized to be glucosamine by HPLC technique. The presence of chitin was also evidenced was using a fluorescent microscopy technique using WGA probe. The pre-treatment of oocytes with *Streptomyces griseus* chitinase greatly reduced the chitin-derived fluorescence. Micrography of lufenuron treated ovaries showed some spaces between follicular epithelium and oocyte membrane, probably due for the chitin absence. Endocitose experiments, *in vivo*, showed that the decrease of the incorporation of radioactive GluNAc was lufenuron dose dependent. Supported: FAPERJ, MS, CNPq.