

Effects of the Flavonoids Rutin and Genistin in the Midgut of *Anticarsia gemmatalis* (Hübner, 1818) (Lepidoptera: Noctuidae) Larvae: Histochemical Study

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In this study we verified the chemical components of the epithelial cells of the midgut of *Anticarsia gemmatalis* larvae after the ingestion of soybean genotypes resistant to insects. The caterpillars, obtained at Embrapa/Soja (Londrina-PR-Brazil), were fed with genotypes that present different concentrations of rutin and genistin: BRS 257 (control), BR16 (0,0016mg/g genistin), Dowling (0.0429 mg/g genistin), PI229358 (0.0212–0.0136 mg/g de rutin/genistin), IAC100 (0.0972–0.0142 mg/g de rutin/genistin) e PI227687 (0,3682-0,0122mg/g de rutin/genistin). The midguts were collected, fixed and processed for histochemical analyses to detection of acids and neutral polysaccharides, proteins and lipids. The neutral polysaccharides were visualized specially in columnar cells, being the greatest staining observed in insects fed with the control genotype (BRS257). After diastase, it was detected glycogen in epithelial cells of larvae fed with IAC100. For total proteins technique, we observed positive labeling in columnar, goblet and regenerative cells for almost all genotypes, being the goblet cells the most reactive cellular type in insects treated with Dowling, similar to results detected in the control genotype. No labeling was visualized for acid carbohydrates and lipids. We conclude that the columnar cells of midgut in *A. gemmatalis* larvae presents neutral carbohydrates, especially those structural, while the proteins were detected in goblet cells. Besides, the different concentration of the phenolic compounds rutin and genistin in the resistant genotypes were responsible by the changes in chemical composition of midgut epithelial cells, which could affect the digestive process.