ECOTOXICOLOGICAL EFFECTS OF INSECTICIDES NEUROTOXIC ON WEB SPIDERS

Marco A. Benamú P.

Centro Universitario Noreste, sede Rivera - Universidad de la República, Ituzaingó 667,

Rivera-Uruguay

mbenamu@cur.edu.uy marcobenamu@gmail.com

INTRODUCTION: Spiders are generalist predatory arthropods, preying on most arthropod taxa. They are part of the complex of natural enemies of insect pests in agroecosystems. They are good indicators of environmental quality, comprising the largest biomass of predatory arthropods. Conventional agricultural production, based on the high demand for phytosanitary products, not only harms target species but also beneficial fauna, including spiders. These arthropods are directly or indirectly affected by various agrochemicals. OBJECTIVE: To evaluate the various sublethal effects on spider web-building, reproductive, and developmental behavior through ecotoxicological studies. MATERIALS AND METHODS: Using the orb-weaving spider *Alpaida veniliae* (Araneae, Araneidae), a common species in agricultural production agroecosystems, as a biological model, we conducted bioassays with neurotoxic insecticides (cypermethrin, endosulfan, spinosad, thiamethoxam+lambdacyalothrin). The insecticides were administered orally through the prey (*Musca domestica*) treated by immersion. Six replicates of 10 adult virgin female spiders were made per treatment. The spiders were fed for four consecutive days (chronic toxicity). RESULTS AND CONCLUSION: Delays and defects in web building (shape, number of radii and spirals) were observed ($p<0.001$). Harmful effects were detected in ovarian development (decrease in oocyte size), egg sac construction (construction defects), egg mass formation (desiccation, decomposition), fecundity and fertility (decrease), and postembryonic development (longer development time). This study provides new knowledge about the side effects of insecticides on the biological aspects of the spider *A. veniliae*, such as neurological deterioration as a result of insecticide exposure, which can induce changes in the instinctive builder-predator behavior of spiders, affecting their hunting behavior patterns, reducing their predatory role and their potential as natural enemies of pests in different agroecosystems, affecting the balance of native beneficial fauna.

Keywords: insecticides neurotoxic; orb-weaving spider; agroecosystems; conventional agricultural