

SHC 16. NMR-BASED METABOLOMICS APPROACH TO STUDY THE TOXICITY OF ACETAMIPRID-BASED INSECTICIDE TO *GAMBUSIA HOLBROOKI*

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In this study, a ^1H nuclear magnetic resonance (NMR) based metabolomics approach was applied to investigate the toxicity of acetamiprid in *Gambusia holbrooki* (Mosquitofish). Acetamiprid is commonly used both in agriculture and domestic areas against a wide range of insects that have gained resistance to other pesticides such as organophosphate, carbamate and pyrethroid.

The commercial formulation of acetamiprid (RastT 20 SP) supplied from a local agricultural pest store, were used in this study. Static renewal acute toxicity tests were performed in glass dishes containing 5 L test solution with 10 fish/vessel. Initially, the 96-h LC_{50} value of acetamiprid was estimated for *G. holbrooki*. Sublethal concentrations of tested pesticide were applied (1/2, 1/5 and 1/10 of 96-h LC_{50} value) for 96-h.

The 24-h, 48-h, 72-h, 96-h LC_{50} value were determined for Acetamiprid was as 75.9, 54.1, 48.5, 42.2 mg active ingredient/L respectively. ^1H NMR spectra of acetamiprid is recorded for its solution in CDCl_3 and D_2O . The obtained signals suggest the signals thermodynamically not stable. The NMR spectra in CDCl_3 could be taken more easily because of the higher solubility in this solvent. Another advantage of this solvent was the absence of signal overlapping around 3.4, 3.5 and 3.8 ppm. The signals in D_2O are more complex because of signal overlapping around 3.1 ppm.

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