

The compatibility of spindor dust with *Poecilia Reticulata* for integrated mosquito larviciding

Anogwih Joy Anuri¹, E. W. Linton², W. A. Makanjuola¹ and L. O. Chukwu¹

¹University of Lagos, Nigeria

²Central Michigan University, USA

The compatibility of spindor dust (spinosad), a bio-rational larvicide derived from the fermentation of a soil bacterium *Saccharopolyspora spinosa*, was investigated on the mosquito fish, *Poecilia reticulata*, and larvae of both *Anopheles gambiae* and *Culex quinquefasciatus* mosquitoes. Three replicates of each of different concentrations of spinosad under static bioassay were performed to determine the acute toxicity of the larvicide on each organism. To investigate the genotoxic and ultrastructural changes in guppy, the fish were exposed for 28 days to low concentrations of the test larvicide capable of killing 30%, 50% and 70% of *Cx. quinquefasciatus* larvae. Thereafter, gill and intestinal cells were removed at days 3 and 28 respectively, and then processed for epifluorescent and transmission electron microscopic studies. Spinosad showed no lethal toxic effect on *P. reticulata* but caused an appreciable mortality to *Anopheles* and *Culex* larvae with 24 h LC₅₀ values of 59.34 µg/L⁻¹ and 73.06 µg/L⁻¹ respectively. The larvicide failed to significantly induce micronuclei in the fish as determined with acridine orange assay (P>0.05). Marked damages that were characterized by pycnotic nuclei, loss of cristae in mitochondria, dense and degraded cytoplasm were found in the exposed intestinal cells of the fish except at 49 µg/L⁻¹ of spinosad. The use of spinosad for integrated mosquito larval control is highly compatible with *P. reticulata* at 49 µg/L⁻¹.

Biography

Anogwih Joy Anuri is a young researcher and Lecturer in the Department of Zoology, University of Lagos, Nigeria. She completed her bachelor's degree in Zoology, master's degree in Applied Entomology and Parasitology, postgraduate diploma in Science Education and recently, a Ph.D. in Applied Entomology and Pest Management from different universities across Nigeria. She has also undergone trainings in different parts of the world including training in Transmission Electron Microscopy at the Central Michigan University, USA. She has worked on parasitic helminthes, protozoan infections in school children as well as, HIV infected individuals. She has also worked in the area of mosquito vector control. She is presently interested in pest control and pesticide toxicology with emphasis on sustainable mosquito vector control. She has her publications in reputed journals including Clinical Toxicology.

janogwih@unilag.edu.ng