

Acute and sub-chronic toxicity of a trypsin-modulating oostatic factor (TMOF) on the growth, body composition and histopathology of red hybrid tilapia, *Oreochromis sp.* as a non-target organism

ABSTRACT

Trypsin-modulating oostatic factors (TMOF) have been shown to be an effective larvicide to mosquitos as a means of controlling their populations and spread of diseases, however there is limited information on its effects to fish, a non-target organism. Two experiments were performed to assess the acute and sub-chronic toxicity of a TMOF product to tilapia. For the acute toxicity test, treatments consisted of a control (0), 100, 500, 1000, 1500 and 2000 mg/L TMOF, which were triplicated with 10 fish/replicate according to the static renewal method. For the sub-chronic test, there were four triplicated treatments (50 fish/replicate) consisting of a control, TMOF at 60 mg/L, TMOF treated diets and a combination of these and the test was conducted for 35 days. After 35 days, growth performance, hepatosomatic index (HSI), vickersomatic index (VSI), whole-body proximate composition, and histopathology of the gills, liver and intestine were recorded. No LC50 values were obtained, even when using TMOF at saturated levels, within 96 hours. Meanwhile, after 35 days no significant differences in all of the measured parameters were detected among the treatments. Based on these findings, the TMOF product showed no acute or sub-chronic toxicity to tilapia and is safe to this non-target organism.

Keywords: Mosquito pesticide; Histopathology; Trypsin-inhibiting; Tilapia; TMOF