

Pengaruh Insektisida Klorpirifos terhadap Struktur Histologi Insang Ikan Wader Pari (*Rasbora lateristriata* Bleeker, 1854)

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Intisari

Salah satu pestisida yang umum digunakan oleh petani untuk mengendalikan hama adalah insektisida organofosfat, seperti klorpirifos. Penggunaan pestisida di Indonesia yang dilakukan dari awal hingga akhir siklus tanamaan dapat menyebabkan dampak negatif pada hewan non-target dan lingkungan. Salah satu ikan yang rentan terkena paparan insektisida klorpirifos adalah ikan wader pari (*Rasbora lateristriata*). Paparan klorpirifos mampu merubah struktur histologi insang ikan sehingga dapat digunakan sebagai indikator pencemaran. Tujuan penelitian ini untuk mengetahui pengaruh insektisida klorpirifos terhadap struktur histologi insang ikan wader pari, jenis kerusakan pada struktur histologi insang ikan wader pari dan pengaruh insektisida klorpirifos terhadap bukaan operkulum dan perilaku ikan. Pada penelitian dilakukan uji pendahuluan, dan uji sebenarnya dengan 4 perlakuan yaitu kontrol, 0,001ppm, 0,005ppm, dan 0,01ppm. Parameter yang diamati yaitu bukaan operkulum, dan perilaku, serta parameter histologis dengan pewarnaan: HE, untuk pengamatan kerusakan histologi dan AB-PAS, untuk pengamatan jumlah sel goblet. Hasil penelitian menunjukkan bahwa insektisida klorpirifos mampu mempengaruhi struktur histologi insang ikan wader pari, mempengaruhi respon fisiologi ikan wader pari berupa penambahan jumlah sel goblet dan bukaan operkulum serta mempengaruhi perilaku ikan wader pari. Kerusakan yang disebabkan oleh insektisida klorpirifos adalah *interstitial edema*, *epithelial lifting*, *hyperplasia*, *fusion of secondary lamella*, *congestion*, dan *hemorrhage*.

Kata kunci: Histologi, Ikan wader pari, Insang, Klorpirifos,

The Effect of Chlorpyrifos Insecticide on The Histological Structure of Gills of Yellow Rasbora Fish (*Rasbora lateristriata* Bleeker, 1854)

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Abstract

Organophosphate insecticide like chlorpyrifos was one of the commonly used pesticide by farmers to control the pests. The use of pesticides in Indonesia from the beginning to the end of the crop cycle can cause negative impacts on non-target animals and the environment. One of the fish that is susceptible to exposure to chlorpyrifos insecticide is the yellow rasbora fish (*Rasbora lateristriata*). Exposure to chlorpyrifos can change the histological structure of fish gills, therefore gill histology is considered a useful indicator in environmental monitoring. The purpose of this study was to determine the effect of chlorpyrifos insecticide at various concentrations on the histological structure of the gills of yellow rasbora fish, the type of histological alteration that happens in the gills, and the effect of insecticides with the active ingredient chlorpyrifos on operculum openings and fish behavior. In the study, a preliminary test was conducted, and the toxicity test was carried out with 4 treatments, namely control, 0.001ppm, 0.005ppm, and 0.01ppm. Parameters observed were operculum opening, and fish behavior, as well as histological parameters using staining methods: HE, for observing histological alteration and AB-PAS, for observing number of goblet cells. The results showed that the insecticide chlorpyrifos was able to affect the histological structure of the gills, affect the physiological response in the form of increasing the number of goblet cells and operculum openings and influencing the behavior of the fish. Damages caused by insecticides with the active ingredient chlorpyrifos are interstitial edema, epithelial lifting, hyperplasia, fusion of secondary lamella, congestion, and hemorrhage.

Keywords: *Rasbora lateristriata*, Chlorpyrifos, Gills, Histology