

**PENGARUH CEKAMAN PANAS TERHADAP STRUKTUR  
HISTOLOGIS KULIT DAN INSANG IKAN GELODOK (*Periophthalmus  
gracilis* Eggert, 1935)**

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Intisari

Ikan gelodok merupakan ikan yang mampu hidup di darat dan di air. Selain insang, gelodok mampu bernafas menggunakan kulit. Suhu bumi yang meningkat secara kontinu dapat menyebabkan berkurangnya oksigen terlarut pada perairan. Cekaman panas udara yang diberikan secara langsung dapat menaikkan suhu air dan udara habitat ikan gelodok ini. Suhu yang meningkat dapat mengubah komponen kimiawi dalam sel. Tujuan dari penelitian ini yaitu untuk mengetahui struktur histologis kulit dan insang pada berbagai perlakuan suhu dan perubahan yang mungkin terjadi. Ikan gelodok diberi perlakuan panas suhu 30<sup>0</sup>C, 34<sup>0</sup>C, 38<sup>0</sup>C selama 4 (09.30 – 14.30) selama 1 minggu, selesai 1 minggu 1 ikan masing – masing suhu diambil, ikan yang tersisa dilanjutkan perlakuan lanjutan 6 jam (09.00 – 15.00) selama 1 minggu. Selesai perlakuan, ikan gelodok dibuat pingsan dalam es, ditimbang, diukur, dieuthanasi dengan memotong syaraf bagian tengkuk, diambil insang, kulit bagian dorsal dan operkulum. Kulit dimasukkan dalam fiksatif formalin selama 2x24 jam dan insang dalam *bouin* selama 6 jam. Kemudian kulit belakang dibagi dua dan insang dilakukan proses dekal 1x24 jam. Setelah itu, dilakukan proses pembuatan preparat dengan metode parafin. Potongan diwarnai dengan pewarnaan HE. Pengamatan mikroskop dilakukan dengan metode deskriptif. Hasil yang didapat yaitu struktur histologis kulit dengan intensitas 4 jam maupun 6 jam pada ketiga perlakuan cekaman panas tidak ada kerusakan, *swollen cell* semua perlakuan terlihat lebih tebal dibandingkan kontrol. Respon perubahan terjadi pada insang suhu 38<sup>0</sup>C 6 jam terdapat penumpukan sel darah merah dan epitel yang kurang beraturan pada lamela sekunder.

Kata kunci: *Periophthalmus*, gelodok, cekaman panas, insang, kulit, histologi

## HISTOLOGICAL STRUCTURE OF SKIN AND GILL OF MUDSKIPPER (*Periophthalmus gracilis* Eggert, 1935) IN RESPONSE TO HEAT SHOCK

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### Abstract

Mudskippers are able to live both in water and on land. Beside using their gill for respiration, mudskippers also use skin. As the earth's temperature increase, it will cause decreasing of dissolved oxygen in water. Heat shock will cause increasing of both water's temperature and air's temperature around mudskippers. The increasing of temperature may cause alteration of chemical component in cell. The aim of this research was to examine histological structure of skin and gill of mudskipper which exposed to heat shock at air temperature 30<sup>0</sup>C, 34<sup>0</sup>C, 38<sup>0</sup>C and what alteration could happen. Mudskippers were exposed to heat shock for 4 hours/day for 1 week (09.30 – 14.30), 1 fish each aquarium was taken after 1 week and remain fishes continued to be exposed for 6 hours/day for 1 week (09.00 – 15.00). Every end of 1 week exposure time fishes were euthanized, measured their length and body weight. Gills were fixated in bouin for 6 hours, dorsal skin and operculum in formaline for 2x24 hours. The dorsal skins were cut into half and gills were decalcified for 24 hours. Then the samples were prepared by standard parafine method and stained with HE. Data was analyzed in descriptive methode. Results showed there was no damage on histological structure of skin all treatments, swollen cell seems thicker than normal. There is accumulation of red blood cells and irregular position of epithelium on secondary lamella at air temperature 38<sup>0</sup>C with intensity 6 hours.

Keywords: *Periophthalmus*, mudskipper, heat shock, gill, skin, histology