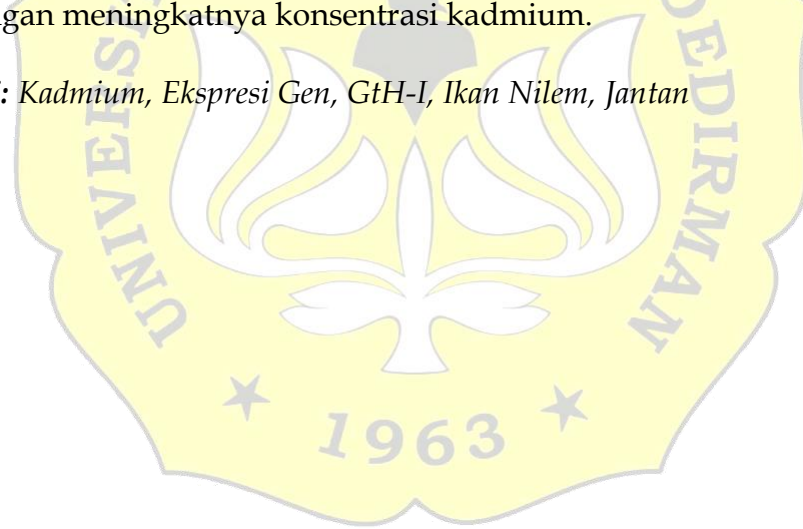


ABSTRAK

Kadmium merupakan salah satu logam berat yang banyak ditemukan di lingkungan perairan dan memiliki efek toksik bagi organisme akuatik. Dampak kadmium pada tubuh organisme yaitu dapat mengganggu sistem reproduksi terutama ekspresi gen GtH-I. Biota uji yang digunakan pada penelitian ini yaitu ikan nilam (*Osteochilus hasselti* C.V) jantan. Tujuan dari penelitian ini yaitu untuk mengetahui pengaruh kadmium terhadap ekspresi gen GtH-I serta konsentrasi yang dapat mengganggu ekspresi gen GtH-I pada ikan nilam jantan. Metode yang digunakan adalah metode eksperimental dengan desain penelitian Rancangan Acak Lengkap (RAL). Penelitian dilakukan dengan lima tahap, yaitu pengambilan hipofisis, isolasi RNA, *DNAse treatment*, pengukuran konsentrasi RNA dan *Real-Time* PCR. Biota uji diberi empat perlakuan kadmium yang berbeda dengan waktu pemaparan selama 28 hari dan pengambilan sampel dilakukan setiap dua minggu sekali. Data kuantitatif berupa ekspresi gen penghasil GtH-I dianalisis dengan *One Way ANOVA*. Hasil penelitian menunjukkan bahwa pengaruh perlakuan kadmium selama 28 hari terhadap nilai ekspresi gen GtH-I memiliki kisaran rata-rata antara 0,02496–0,37532. Pengaruh perlakuan kadmium tidak memberikan pengaruh yang signifikan dalam menurunkan nilai ekspresi gen GtH-I pada ikan nilam jantan, seiring dengan meningkatnya konsentrasi kadmium.

Kata kunci: Kadmium, Ekspresi Gen, GtH-I, Ikan Nilam, Jantan



ABSTRACT

Cadmium is a heavy metal that is found in many aquatic environments and has toxic effects on aquatic organisms. The impact of cadmium can be disrupting the reproductive system, especially the expression of the GtH-I gene. In current study male silver sharkminnow fish (*Osteochilus hasselti* C.V) was used. The purpose of this study was to determine the effect of cadmium on the expression of the GtH-I gene as well as the concentration and exposure time that could interfere with the expression of the GtH-I gene in male silver sharkminnow fish. The method used a Completely Randomized Design. The study was conducted in five stages, that's pituitary retrieval, RNA isolation, DNase treatment, measurement of RNA concentration and Real-Time PCR. The fish was exposed to four different cadmium treatments with an exposure time of 28 days and the sample was collected every two weeks. Quantitative data in the form of GtH-I-producing gene expression were analyzed using One Way ANOVA. The results showed that the effect of cadmium treatment for 28 days on the value of GtH-I gene expression had an average range between 0.02496–0.37532. The effect of cadmium treatment showed insignificant effect in reducing the value of GtH-I gene expression in male silver sharkminnow fish, along with increasing cadmium concentrations.

Keywords: Cadmium, Gene Expression, GtH-I, Silver Sharkminnow Fish, Males

