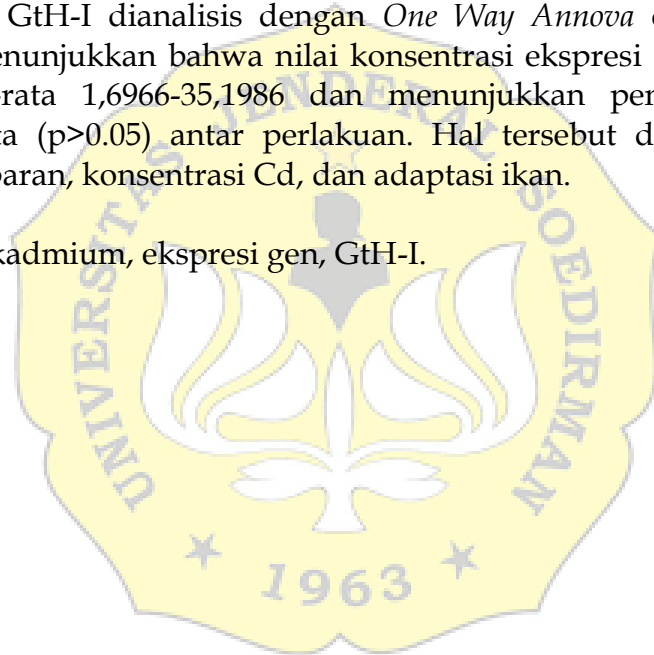


ABSTRAK

Kadmium (Cd) adalah logam berat yang memiliki sifat toksik di dalam air baik pada konsentrasi rendah maupun tinggi. Kadmium di perairan berasal dari limbah pertanian dan antropogenik, serta dapat memberi efek subletal pada ikan dengan menghambat sistem reproduksi, seperti ekspresi gen GtH-I. Biota yang diuji adalah ikan nilam (*Osteochilus hasselti* C.V) betina. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh logam Cd terhadap ekspresi gen GtH-I pada ikan nilam betina. Metode yang digunakan adalah metode eksperimental dengan desain penelitian Rancangan Acak Lengkap (RAL) dengan 4 perlakuan berbeda (0 ppm, 2 ppm, 4 ppm, 6 ppm) selama 4 minggu dengan pengambilan sampel setiap 2 minggu sekali. Penelitian dilakukan dengan 4 tahap, pengambilan hipofisis, isolasi RNA, DNase Treatment, pengukuran konsentrasi RNA dan Real-Time PCR. Data kuantitatif berupa ekspresi gen GtH-I dianalisis dengan *One Way Anova* dan uji BNT. Hasil penelitian menunjukkan bahwa nilai konsentrasi ekspresi gen GtH-I memiliki kisaran rata-rata 1,6966-35,1986 dan menunjukkan pengaruh yang tidak berbeda nyata ($p > 0.05$) antar perlakuan. Hal tersebut dapat terjadi karena waktu pemaparan, konsentrasi Cd, dan adaptasi ikan.

Kata kunci : kadmium, ekspresi gen, GtH-I.



ABSTRACT

Cadmium (Cd) is a heavy metal that has a toxicity contribution in water at both low and high concentrations. Cadmium in the waters comes from agricultural and anthropogenic wastes, and can exert sublethal effects on fish by inhibiting the reproductive system, such as the expression of the GtH-I gene. The biota tested was female Nile tilapia (*Oreochromis niloticus* L.). The purpose of this study was to determine the effect of Cd metal on GtH-I gene expression in female Nile tilapia. The method used was an experimental method, with a completely randomized design research design (CRD) with 4 different treatments (0 ppm, 2 ppm, 4 ppm, 6 ppm) for 4 weeks with sampling every 2 weeks. The research was conducted in 4 stages, pituitary retrieval, RNA isolation, DNase treatment, measurement of RNA concentration and Real-Time PCR. Quantitative data in the form of GtH-I gene expression were analyzed by One Way Anova and LSD test. The results showed that the GtH-I gene expression concentration value had an average range of 1,6966-35,1986 and showed no significant difference ($p > 0.05$) between treatments. This can occur due to exposure time, Cd concentration, and fish adaptation.

Key words : cadmium, gene expression, GtH-I.

