

## Oral Presentation (WAAC-5)

**Flushing Aquaria with *Hibiscus sabdariffa* Extract on TNF $\alpha$  Expression in Fish Due To Mercury Intoxication**

Olan Rahayu Puji Astuti Nussa\*, Miranti Candrarisna, Laksmyn Kadir

Department of Pathology Anatomy Faculty of Veterinary Medicine, Wijaya Kusuma University, Surabaya, 60225, Indonesia

Department of Pharmacology and Pharmacy, Faculty of Veterinary Medicine, Wijaya Kusuma University, Surabaya, 60225, Indonesia

Department of Biology Education, Faculty of Biology and Science Gorontalo State University, Gorontalo 96128, Indonesia

Corresponding author's email: [olanrahayu83PAN@gmail.com](mailto:olanrahayu83PAN@gmail.com)**Keywords:** fish, flushing Aquaria, *Hibiscus sabdariffa* extract, mercury intoxication, TNF $\alpha$ .**ABSTRACT**

The purpose of this study was to determine the expression of TNF $\alpha$  in the gills and liver tissue and the fish acute intoxication due to mercury, post-treatment using Rosella extract and flushing aquaria. It was an experimental study with a posttest only control group design consisting of 30 adult male fishes. There are 5 groups treatment including: P0 (healthy); P1 (mercury without Rosella extract and flushing); P2 (given mercury and Rosella extract of 5 ppm and flushing); P3 (given mercury and Rosella extract of 10 ppm and flushing); P4 (given mercury and Rosella extract of 20 ppm and flushing). Each group performed necropsy and examination immunohistochemical

in the fish's gills and liver on the 7th day after induction with mercury and on the 15th day of post-therapy using Rosella extract with flushing Aquaria. The results showed TNF $\alpha$  expression in the gills was different significantly and the the number was increasing compared to TNF $\alpha$  in the liver. The decrease of TNF $\alpha$  expression in the gills and liver were significantly different in the P4 group when compared to the other groups. In conclusion, Flushing aquaria and Rosella extract can reduce the TNF $\alpha$  expression in the fish's gills and liver which experiencing mercury intoxication. Flushing Aquaria technology is a very appropriate method used for therapeutic in aquatic animals.