

Enzymatic Biomonitoring of Aquatic Pollution at Jeddah Southern Red Sea Shore

Authors : Saleh Mohamed, Mohamed El-Shal, Taha Kumosani, Ahmad Mal, Youssri Ahmed, Yasser Almulaiky

Abstract : The marine environment of the Jeddah southern red sea shore is subjected to increasing anthropogenic activities as sewage sludge draining and desalting processes. The objective of this study is to compare the quantitative responses of enzymatic biomarkers in fish from polluted area with the responses of organism from reference area. Enzymatic biomarkers as neurotoxic, antioxidant and detoxifying enzymes were evaluated in the brain and liver from *Variola louti* as a sentinel species sampled from both polluted and reference sites in the Jeddah southern red sea shore during four months January, April, July and October in 2014 and 2015. In brain of *V. louti*, the activity of acetylcholinesterase (AChE) collected from reference area significantly increased 8.8 and 10.5 folds than that from polluted area in 2014 and 2015, respectively. The activities of catalase (CAT), glutathione reductase (GR) and glutathione peroxidase (GPx) and glutathione-S-transferase (GST) from liver of *V. louti* in polluted area significantly increased 1.4, 1.27 and 3, 4.5 and 4.37, 2 and 5, 4.5 folds than that from reference area in 2014 and 2015, respectively. The levels of examined enzymes are approximately similar in the four seasons detected in 2014 and 2015 indicating that the similar components of sewage were draining in red sea. In conclusion, these findings suggest the important of enzymatic biomarkers in monitoring the pollution in Jeddah red sea shore.

Keywords : *Variola louti*, enzymatic biomarkers, pollution, Red sea

Conference Title : ICEPR 2016 : International Conference on Environmental Pollution and Remediation

Conference Location : Paris, France

Conference Dates : July 25-26, 2016