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ABSRACT

The present study was designed to assess the effect of sublethal concentrations of electoplating industry effluent (EIE) on the non-specific and specific immune responses in the freshwater fish, *Cyprinus carpio*. Sublethal concentrations of electroplating industry effluent such as 0.004, 0.007, 0.010 and 0.013% were chosen based on the LC_{50} values. Experimental fish were exposed to these sublethal concentrations of EIE for 28 days. After 7, 14, 21 and 28 days of treatment, non-specific immune response by serum lysozyme activity, myeloperoxidase activity and antiprotease activity and specific immune response by antibody response to *Aeromonas hydrophila* using bacterial agglutination assay and ELISA were assessed. The results showed that chronic exposure of fish to 0.004, 0.007, 0.010 and 0.013% EIE, dose-dependently decreased the non-specific and specific immune responses on all the days tested compared to control fish whereas statistically significant suppressive effects were observed in fish exposed to 0.013% of EIE on all activities tested.

KEYWORDS: Electroplating industrial effluent, *Cyprinus carpio*, lysozyme activity, myeloperoxidase activity, antiprotease activity, antibody response, *Aeromonas hydrophila*, and immune response.

INTRODUCTION

Aquatic systems are exposed to a large number of pollutants which are mostly released in effluents from industries. Globally, industrial waste water represents the major source of water pollution [1]. Especially waste water from electroplating unit is toxic and hazardous and high in the heavy metals, chromium, nickel, lead, copper and zinc. Tamil Nadu has 400 registered electroplating units operating as small scale sector industries. These units are very small and space is inadequate to have effluent treatment plants. The wastewater may enter public sewer without treatment or aquatic systems or fish farms through agricultural runoff or urban runoff. In certain cases untreated or partially treated or diluted effluents may reach aquatic systems. These