

ABSTRACT

Bisphenol A (BPA) is an estrogenic endocrine disrupting chemical. It is used in the manufacturing of polycarbonate plastic, polyvinyl chloride, epoxy resins, as lacquers to coat metal food cans and thermal printing papers. Fish are an inhabitant of aquatic system that are directly exposed to all anthropogenic chemicals and are one of the most important indicators for assessing the health status of water bodies. The immune system is a very sensitive indicator of sub-lethal toxicity especially during larval and juvenile periods. *Labeo rohita* (Rohu) belongs to the carp family Cyprinidae. To evaluate the immunotoxic effects of BPA on immune system of freshwater fish *L. rohita*. *L. rohita* larvae were exposed with graded concentration of BPA (10, 100 and 1000µg/l) for 21 days along with one control group. A non-significant decrease in catalase activity was recorded in groups exposed to 10 and 100 µg/l BPA and a statistically significant increase was recorded in catalase activity in groups exposed to 1000µg/l BPA. A non-significant increase in glutathione content was observed in fish larvae exposed to 10 and 1000µg/l BPA. Glutathione-S-transferase activity and level of lipid peroxidation increased in a concentration manner, and a statistically significant increase was recorded in groups exposed to 1000µg/l BPA. Quantitative PCR (qPCR) was used for mRNA expression analysis. There was no significant difference in expression of *inf-gamma* between the control and groups exposed to 10 and 100 µg/l BPA while group exposed to 1000 µg/l BPA had significantly lower expression of *inf-gamma*. There was no significant difference in *tnf-alpha* gene expression between the control and treated groups, a non-significant increase was recorded in expression of *tnf-alpha* in group treated with 100 µg/l BPA. More than 2 fold increase in mRNA level of *il-10* was observed in the larvae exposed to 10 µg/l BPA. mRNA expression of *hsp70* increased with concentration dependent manner was recorded.