

# CHAPTER 3

## OBJECTIVES

### **OBJECTIVE OF THE PRESENT STUDY**

3.1. The present study was designed to envisage the effect of non-lethal doses of mercury and cadmium exposure in *Channa punctatus* Bloch. focusing on immunosuppression consorted with oxidative stress and alteration of enzymatic as well as non-enzymatic antioxidant profiles.

3.2. The immunosuppressive effects of heavy metal pollution and oxidative stress resulting in higher disease susceptibility and the ensuing cytokine cross-talk have been explored here.

3.3. The study further endeavors to find out the interactivity effect from combined exposure to these heavy metals and determine possible synergistic effects on immunomodulatory response as well as antioxidant activity.

3.4. Relative gene expression quantification of pro-inflammatory cytokine genes in the intestine of *Channa punctatus* by qRT-PCR, after the exposure of mercury and cadmium.

3.5. Lastly, the purpose for choosing a universal trait or an innate component was that it could act as an effective biomarker for heavy metal stress or other adverse conditions in aquaculture or nature.