**Abstract**

Heavy metals like mercury and zinc have high toxicity levels among all heavy metals. Mercury has highly toxic effect and affects the nervous, digestive, immune systems of human beings. Zinc has high toxic effects on bacteria, invertebrates and vertebrate fish.

Human body contains 2-3 g of zinc content, by indirectly consuming the fish, intake of zinc helps to treat muscular degeneration, asthma, skin disorders. Carbohydrates has sugar, starch, fiber energy levels, produce energy, prevents diseases, control bad cholesterol and control weight. Fish has high protein content which is excellent for anti-aging. Lipid contains omega- 3- fatty acids, anti- oxidants like iodide, selenium. Biomolecular content of fishes is highly dependent on heavy metal accumulation which is a bioindicator of water pollution. This study shows heavy metal content has effect on carbohydrates, proteins and lipids. The present study shows the biomolecules such as, carbohydrate is high in Nethili fish (1.9 g) when compared to Sankara fish (0.7 g) and protein and lipid contents were high in Sankara fish (14.92 g and 0.26 g) and it was low in Nethili fish (14.73 g and 0.18 g) and heavy metals such as mercury and zinc is high in sankara fish (3.06 ppb and 0.71 ppm) and in Nethili fish (0.06 ppb and 0.41 ppm ) respectively. Heavy metal accumulation and the biomolecular profile of *Lutjanus gibbus* and *Engraulis albus* has been studied.