SYNOPSIS

Fish is a biological indicator of aquatic environment. Increasing population of India also needs it as a food being high protein content. But man has altered the natural environment of streams, rivers and lakes since time immemorial either directly by throwing his refuse or indirectly by clearing the forests, burning and cultivating, which ultimately lead to the alteration of inland waters. The problem was not severe before but became noticeable after utilization, increase in population and diversification of human activities. Modern industrial and technological revolution resulting in the demand of luxuries and concentration in urban centres have added up greatly to the problem.

At present we are surrounded by more than 50,000 man made chemicals and these chemicals are being introduced at the rate of about 25 per day. Most of these chemicals are used in various industries and finally find their way into the rivers and ponds through the industrial outlets and disturb the natural ecosystem.
Present investigation has been undertaken on the hillstream fish Garra mallya. It is abundantly available near the Aurangabad city. It is consumed by poor people of this region as one of the food source. Previous investigations were done on this species by Toans S. (1941) on migration for breeding, Somavanshi (1976) on biology. But very little work has been carried out on the toxicology of G. mallya. So, in the present study effects of different pollutants on this species has been studied.

It is wellknown that water is polluted by many pollutants, such as pesticides, herbicides, heavy metals, domestic sewage, industrial effluent etc. Endosulfan, Copper sulphate and distillery effluent are the selected pollutants for the present investigation.

On the many pesticides whose toxicity to fish has been reported, endosulfan is known to be one of the most toxic to fish (Maierbode, 1968; Schoettger, 1970; Rao and Murthy, 1980; Rao et al., 1980; Devi et al. in press). Endosulfan is organochlorine pesticide which is persistent non-biodegradable nature and accumulate in the different
tissues of fishes, Copper salts are well known in the effluents of metal finishing industries. The sugar factories and alcohol distilleries can be categorized as major source of pollutants among the industries as a whole.

Present study can be divided into three parts-

Part-I: Acute toxicity - The acute toxicity studies were made with the endosulfan, copper sulphate and distillery effluent to fish, *G. mullya*. An attempt has been made to determine the $L_{C50}$ values and to observe the behavioural changes:

Part-II: Chronic toxicity - Effect on biochemical composition: Long term toxic effects of pollutants were studied to observe the changes in composition of protein, glycogen and lipids from muscle, liver, kidney and gonads of *G. mullya*. Two sublethal concentrations were used for each pollutant.

Part-III: Chronic toxicity - Histopathological changes - Chronic effect of endosulfan, copper sulphate, distillery effluent on the histopathology of different tissues like, (a) gills (b) stomach (c) Liver (d) kidney (e) Ovary and (f) testis of *G. mullya* studied at two sublethal concentrations.