The toxicity of three chlorinated hydrocarbon insecticides, DDT, endrin and gamma BHC to the freshwater teleost, Channa punctatus Bloch was investigated by exposing the fishes to different concentrations of the chemicals in glass aquaria under laboratory conditions. Bioassays were conducted to observe the behavioural manifestations in the fishes treated with different concentrations of the insecticides at different time intervals.

It was observed that the exposure of fishes to toxic solutions caused abnormal behaviour in them. They became hypersensitive, showed violent movements, became lethargic and lost equilibrium. The rate of opercular movements increased after about 15 minutes of their being released in a toxicant solution. It reached its maximum after six hours and then gradually declined to normal and got so much reduced that the fishes died. The fishes became lighter in colour and the colour of gill lamellae became pink. Gill lamellae showed precipitation of mucous while the body surface was covered with a thick coating of mucous.

Lethal concentration values of the three chlorinated hydrocarbon insecticides to Channa punctatus were also determined for time intervals of 24, 48, 72 and 96 hours. The LC\textsubscript{50} values for these time periods of DDT, endrin and gamma BHC were 12.0, 11.5, 11.1 and 10.75 ppm respectively of DDT, 0.035, 0.03, 0.023.
and 0.02 ppm respectively for endrin and 15.20, 14.7, 14.25 and 13.7 ppm respectively of gamma BHC. An attempt was also made to find out if the crowding of fishes in a limited amount of water containing known quantity of a toxicant could alter their sensitivity to pesticides. 10, 15 or 20 fishes of equal size belonging to the species *Channa punctatus* were tested in 15 litres of contaminated water. It was found that the $LC_{50}$ values varied with respect to the number of fish in an aquarium. The results indicated that crowding decreased the sensitivity of the *Channa punctatus* to DDT, endrin and gamma BHC.

Physico-chemical characteristics of the Upper Ganges Canal in relation to the occurrence of *Channa punctatus* were also determined. Studies on the effects of these characteristics on the fish fauna of the canal and the sensitivity of *Channa punctatus* to temperature were made over a stretch of about three kilometers where two thermal power generating stations are situated. It was found that temperature, dissolved oxygen, pH and alkalinity got greatly modified and created conditions resulting in a heavy mortality of the fishes when the canal was closed for two weeks. The temperature increased from 32.0°C to 49.0°C, dissolved oxygen concentrations reduced from 8.4 mg/l to 1.4 mg/l, pH varied from 8.0 to 9.8 and the alkalinity increased from 164.0 to 198.0 mg/l. These observations showed that carps were highly susceptible to temperature fluctuations followed by eel fishes. The catfishes were comparatively more tolerant to the fluctuating physico-chemical conditions while
*Channa punctatus* could adapt itself to the fluctuating conditions.

A study was also conducted to examine the histopathological changes caused by the three chlorinated hydrocarbon insecticides at time intervals of 7, 15 or 30 days in sublethal concentrations and concentrations showing 96 hour LC$_{50}$ values of the insecticides in the liver and the kidney of *Channa punctatus*. It was observed that the toxicants produced a number of histopathological changes in these organs. This hypertrophy of hepatic cells, necrosis and vacuolation of cytoplasm, hypertrophy of nucleus, its displacement and pycnosis, damage to connective tissue its proliferation and thickening leading to fibrosis and enlargement of intercellular spaces. A number of striking changes in the pathological structures of the kidney of fishes were also noted. The conspicuous changes were shrinkage of glomeruli, modification in the renal tubules by expansion and destruction of tubular epithelia and damage to the connective tissue.