The common freshwater teleost, *Channa punctatus* Bloch belonging to family Chanidae was selected as the test animal to determine the behavioural and biological effects of three organochlorine pesticides, DDT, endrin and gamma BHC. The fishes were obtained from local freshwater sources at Aligarh and acclimatized under laboratory conditions for seven to ten days before experimentation.

Stock solutions of DDT, endrin and gamma BHC were prepared by dissolving 100 milligrams of a chemical in 100 millilitres of acetone. The desired degree of concentrations were prepared by adopting techniques of Doudoroff cited in Standard Methods, 1976. Temperature, pH and dissolved oxygen concentration of the experimental solutions were recorded at intervals of 24 hours.

Observations with respect to behaviour such as sensitivity of the fishes to the toxicants opercular movements, loss of equilibrium, change in body colour, gill lamellae and distress were made throughout the experimental period. *LC* ₅₀ values were determined for time intervals of 24, 48, 72 and 96 hours from regression lines fitted to eye. All tests were conducted in glass aquaria measuring 60x30x30 cm, in size and containing 15 litres of water with a measured amount of the toxicant.

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. The LC₅₀ values for time intervals of 24, 48, 72 and 96 hours 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 of 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 exposed to 15 litres of the contaminated water in an aquarium. It was found that the LC₅₀ values varied with respect to the number of the fishes in an aquarium. The results indicated that crowding decreased the sensitivity of *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 were 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 concentration 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. The carps were found to be highly susceptible to temperature fluctuations followed by the eel fishes. Catfishes were comparatively more tolerant to the fluctuating physico-chemical conditions. *Channa punctatus* certainly showed great adaptation to the fluctuating conditions, but no fish could survive when the temperature of the canal water became 49.0°C.

The histopathological changes caused by the three organochlorines in the liver and the kidney of *Channa punctatus* were studied in detail. The toxicants produced a number of histopathological changes including hypertrophy of hepatic cells, necrosis and vacuolation of cytoplasm, hypertrophy of nucleus, its displacement and pyknosis, damage to connective tissue, its proliferation and thickening leading to fibrosis and enlargement of the intercellular spaces. The conspicuous changes in the kidney of the fishes were shrinkage of glomeruli, modification in the renal tubules by expansion, destruction of tubular epithelia and damage to the connective tissue.