SUMMARY

The experimental fish Rosy barb, *Puntius conchonius* is an attractively coloured fish found invariably in all public aquaria. Since it is identified as a vulnerable species by NBFGR in Indian riverine habitats, a study on this species is felt worthwhile.

The length-weight relationship study on this fish revealed that there was a linear increase in length as the weight increased and vice versa. Interestingly, in females this relationship was found more positive in females than in males. The regression coefficient value for female (b=3.220) was higher than male (b=3.176). The high/optimum values of condition factor (CF) and relative condition (Kn) in all the fish groups showed the adaptability of the fish *P. conchorius* in tank culture system in tropical climatic condition.

An attempt was made to prepare isocalorific protein diets with varying protein density using the locally available food ingredients. The optimum dietary protein level for the fish *P.conchonius* was found to be 35% and optimum ration was 100% of 5% body weight of the fish. Dietary protein level did not influence Absorption efficiency within size groups. Maximum absorption efficiency was obtained by fishes fed with 35% protein diet irrespective of size groups. Energy consumption and conversion rates were maximum when the fishes were exposed to 35% protein diet. The FCR value was lesser in size group A (1.7 ± 0.044) followed by size groups B (1.9 ± 0.027) and C (2.08 ± 0.083) when fed with the optimum (35%) dietary protein density diets. At 100% ration, size group A showed maximum conversion efficiency (K_1=15.26 ± 1.362).

Dissolved oxygen is an important factor in aquaculture. Since there is fluctuation in the day to day climatic conditions of tropical region, experiments on the influence of abiotic factors such as temperature, partial pressure of oxygen and feed and the biotic factor such as density and size of fish, were carried out. Interestingly, it was found out that the size, biomass, feed, partial pressure of oxygen and temperature had significant role on fish metabolism. For instance, the rate of oxygen consumption by size A fish was 1.175 mg O2/g/h at 24^0C and this increased to 2.25 mg O2/g/h at 34^0C when the partial pressure of oxygen (125 mmHg) and density of the fish were the same.

An attempt was made to study the effects of commonly used pesticides such as Endosulfan and Fenvalerate on the fish, *Puntius conchonius*. Results revealed that the LC_{50} of organochlorine pesticide, Endosulfan was relatively lower than that of pyrethroid pesticide, Fenvalerate. Histopathological studies revealed that both the pesticides were equally deleterious at sublethal concentrations. It was interesting to find that the fish could record signs of resilience after allowing them to 21 days of pesticide free medium. Further extension of the recovery period might show complete recovery. Off all the six types of tissues studied intestine recovered fast followed by stomach, gill, kidney and liver irrespective of the exposed pesticides.

The karyotype of chromosomes of this fish, collected from in and around local areas, revealed that the diploid number is 2n=50. This showed that, like the other species of Cyprinid family, this fish is also conservative in nature in the number of chromosomes.