SUMMARY AND CONCLUSION

The present work aims to investigate the response of some tissues of **Oreochromis niloticus** to the effect of the carbamate insecticide "Sevin".

Sevin (1-naphthyl N-methyl carbamate) was used at a predtermined sublethal concentrations of 0.5 and 1.0 mg/L. Healthy **Oreochromis niloticus** of nearly the same age with a body weight ranging from 100 to 150 grams were examined.

72 fishes were alloted among three groups. Two groups were treated with 0.5 and 1.0 mg/L Sevin and the third was considered as control. Eight fishes from each group were sacrificed after 5 days another eight after 10 days and the last eight were sacrificed after 15 days of incubation in the insecticide samples of ovaries, liver and muscles were used for histochemical cytophotometric studies.

Histological examination of the ovary revealed the following changes in treated fish as compared to control

- A reduction in the number of oocyts was generally association with increased incidence of atresia.
- The insectiside (Sevin) affects the early stages that depend on de novo RNA and protein synthesis of follicular cells.

- Keratin, SS. and amino group rich proteins, show an initial decreased in their values after five days of treatment followed by a gradual increased after 10 days.
- Protein content of the ovarian components of the treated fish was considerably less than that of control, this may be due to the increased population of atratic follicles in ovaries of treated fish.

The insecticide resulted in reduction in RNA content. Increased in DNA content and increased in glycogen content Histological examination of the liver revealed the following changes in treated fish as compared to control :

- Vacuolation and breaking down of cell boundaries of hepatocytes.
- Decreased in the amount of glycogen in treated animal hepatocytes.
- Degeneration of nuclei of the treated fish hepatocytes.
- The mean amount of DNA per hepatocyte shows an increased The increase could be due to enhancement of DNA synthesis or accumulation of DNA due to inhibition of division in these nuclei.
- Decreased in RNA synthesis.This effect was more dramatic when expressed as proportion of nuclear DNA content.
- Decreased protein synthesis.However,quantitative measurement of different types of protein indicated a definit increase in SS. containing proteins.Such proteins could be mostly enzymes essential for carbamate metabolism.

- Many nuclei were pyknotic and shrinked histological examination of muscle revealed the following changes in the treated fish as compared to control :
- Splitting of muscle fibres and partial filoculation was noticed, dystrophy was represented and the nuclei appear central. Dystrophied fibres with small diameter were also present adjacent to fibres showing signs of coagulative degeneration.

All the above pathological changes were expected to be due to neuropathy in the nerve supplying these muscle fibres because of inhibition of acetylcholinesterase. The histochemical results indicate :

- Increased in glycogen content in treated fish muscle.
- Increased cytoplasmic RNA content.
- Increased in keratin and amino group rich protein content and decreased in other type.

In conclusion, although **Oreochromis niloticus** was capable to metabolize the insecticide carbamate, enzymes necessary to perform these metabolic activities were synthesized after a lag period of 10-15 days. This lag period was enough to effect the growth and number of healthy oocytes leading to decrease fertility.

It also results in neuropathy leading to partial destruction of muscles as well as change in its protein content. This leads to retardation of growth and change in the quality of the edible parts of the fish.