Imbalance due to population explosion and misuse of modern technologies have created environmental crisis which has threatened the future of mankind. Modern man enjoys better amenities in health, food and comforts than our ancestors did. Scientific development has made the life more comfortable. It is expected that the population of the spaceship earth will rise to 8 billion by 2010 and the major part of the population growth will be in poor countries where resources are less. This has put demands on increased food and fibre production ultimately depending on the use of synthetic chemicals. The enormous use of the synthetic organic chemicals in the field of agriculture, medicines, nutrition, hygiene etc., has enhanced human life.

In the pastoral and nomadic society man functioned as an integral part of an efficient ecosystem wherein, his simple wastes could be placed in the ground and recycled into the environment by other component of the ecosystem, a natural environment created through biological activity. With the advent and concentration of population in towns/cities, the obvious solution to the waste problem was to permit them to be discharged ultimately into the rivers. Thus land was starved of nutrients and water courses enriched with them brought ecological disorder in both soil and water cycles.

Organisms and their environment form a functional unit with reciprocal relationship between them. An environment represents a costraining influence within which an organism must operate, the organism in turn influences the properties of its environment. When the rate of pollutant production exceeds the rate of dissipation, accumulation of toxic levels may occur. Pollutants for instance do not effect until they exceed the threshold of tolerance, till such time they are habitat components and not environmental factors.
Of late, great interest has been focussed on the environment and its related problems encompassing the ecological system of the Homo sapiens. This is because of the worldwide use of pesticides in agricultural and public health programmes have greatly decreased the vector-borne diseases and increased the food supply. On the other hand these pesticides have resulted in the accumulation of these toxic substances in the environment and ultimately resulted in the deleterious effects on non-target organisms expressed in the form of large scale killings or in other physiological disorders (Edwards, 1970). Because these chemicals after their application are not confined to the target organisms as they are not taken up and degraded completely by the target organism. These pesticides later enter into the non-target organism directly or indirectly through contaminated food. During the three decades the production of pesticides increased from 10 billion pounds in 1963 to 138 billion pounds in 1970.

Impact of pesticides on the ecosystem were analysed. It was found that some influenced the structure and function of ecosystem and communities, some reduced species population, some changed behavioural patterns, some increased and decreased the reproductive capacity, some stimulated or suppressed growth, some altered nutritional standard of the food, some increased susceptibility to diseases and predators and some changed natural process of evolution in some regions (David Pimental and Nancy Goodman, 1974). These toxicants bring about two kinds of deleterious effects in the organisms;

a) the immediate, differential mortality of species within community.
b) long term accumulation of residues in the body tissues.

Air is the main link to life. It far exceeds the consumption of food and water. It is estimated that man takes in about 15-20 times the amount of air as food. An average man breathes 22,000 times each day and thus inhales about 10,600 ltrs. of air every day. The worst impact of air pollu-
tion in the recent past is the loss of life of thousands of people in the Bhopal gas tragedy due to the leakage of Methyl Isosynate gas (MIC). The Chernobyl nuclear disaster of USSR reminds us of the radioactive pollution. The US Department of Agriculture has estimated that annual losses to agricultural crops from air pollution ranged from Rs. 1500 million to Rs. 5000 million for the period from 1951 - 1960. In this context it is noteworthy to mention the effect of water pollution on the marine fish kills in San Diego Harbour (USA) in 1962 which produced one raft of dead fish measuring about 1000 ft. long, 10 ft. wide and 3 feet deep (Southwick, 1976). Government of India has taken up on priority basis the cleaning of the holy River Ganges because it is heavily polluted due to the discharges of the human waste and also from the industries situated on its banks.

The successful pollution abatement of course, depends not only upon treatment and control but also on efficient monitoring of general environment. Monitoring takes two basic forms.

a) direct monitoring of concentration of pollutants like $SO_2$, $CO_2$ over a large regional area and

b) the use of biological indices which are widely used in monitoring water pollution.

Therefore, study of the nature of toxicity of pollutants and their effects on the aquatic animals has become a matter of utmost importance. Much work must be done on the effects of pesticides on non-target species of commercial importance. Both extensive as well as intensive investigations were carried out on OC compounds. As a result of which many of them were banned from use in USA. Later on OP compounds and carbamates were developed as substitutes for OC insecticides. As the present investigation deals with the comparative evaluation or organochlorine, organophosphorus and carbamate insecticides, endosulfan, malathion and sevin respectively were selected.
Investigations involving the above three pesticides at sublethal exposures indicating the sequences of events in physiological systems providing knowledge on the nature and completion of compensating mechanisms during long term toxic exposures are highly scanty particularly in fishes.

Studies on the lethal effects of the pesticides have gained momentum in the recent past. However there are some studies involving sublethal exposure of malathion and methyl parathion in fishes (Kabeer Ahmed, 1979, Bashamohideen and Subbarao, 1982, Obulesu, 1985 and Prasad, 1986), but such studies are lacking with reference to endosulfan and sevin. Hence with a view to bridge the gap and gain a better understanding of the effects of OC, OP and carbamate pesticides at sublethal long term exposure periods, endosulfan, malathion and sevin are selected as suitable insecticides to study physiological responses in *Labeo rohita*. This investigation is so planned that it gives a comparative insight on physiological bio-chemical and morphological responses of *L. rohita* involving the level of toxicity, degree of susceptibility and resistant and recovery capacity of the fish during the exposure periods of endosulfan, malathion and sevin. But due to the limitations of time and requirements of M.Phil Degree, the present investigation is restricted to its present form.