PREFACE
As a consequence of rapid industrialisation and advancement of chemical technology, most of our rivers, lakes, streams, estuaries and coastal marine waters are being increasingly polluted and ultimately becoming the repositories of various pollutants. This uncontrolled pollution is most often caused by indiscriminate anthropogenic activities especially in the rejection or discharge of domestic wastes, sewage, industrial effluents and excessive use (misuse) of pesticides.

As a gift of the technological progress, pesticides are only a part of man made useful chemicals like medicines, cosmetics, food additives, detergents, solvents and paints. Pesticides are being employed to meet a wide variety of needs of household pest control, Agriculture, Forestry, Animal Husbandry and Public Health. Pesticides vary from volatile liquids to semisolids, waxy or crystalline solids. They possess an innate capacity to cause damage to biological systems and this is termed as toxicity. The degree of toxicity to several forms of life varies according to the chemical structure of the pesticide, its method
of use, the site of application and duration of contact. The spectrum of activity of pesticides often extends far beyond the pests and justifies the more applicable term 'bicide'. Many of these pesticides are known to persist for long periods in the environment and their concentration builds up geometrically as they are transferred to different stages of the food web in the ecosystem. The impact of these chemicals is more pronounced on non-target organisms leading towards the disruption of the ecological balance (Brungs et al., 1979; Sphochar et al., 1979; Matsunara et al., 1972). A variety of pesticides were reported to have accumulated in the freshwater environment (Westlake et al., 1966).

The residues of various pesticides often accumulate in agricultural soils more rapidly than degraded. Serious cases of fish mortality have occurred following the leaching of pesticides from agricultural fields to nearby rivers or streams after rainfall. A case that attracted considerable public interest in America was, mass scale fish killed in the lower Mississippi river in which five million fish died as a consequence of dumping of endrin rich agricultural
wastes. The tragedy at Love Canal near New York is worth remembering. Love Canal, an abandoned canal, years ago served as a convenient burial site for waste chemicals. When the canal was filled, the residents of that area experienced high rates of birth defects, miscarriages and liver diseases in 1978 (Nebel, 1981). This was found to be due to the chlorinated hydrocarbons in the water. Another well documented case was the Handigodu syndrome reported in agricultural workers in a small village Handigodu, Karnataka in 1977, due to the consumption of pesticide exposed crabs and fishes, resulting in swelling and immobilization of knee joints (MIN 1977).

Malathion is a versatile organophosphate insecticide widely used throughout the world to control pests, flies, and mosquitoes (U.S. Dept. Interior, 1964; Knapp, 1965; Fischer, 1958; Anon, 1966). Because they are less persistent, increasing concentrations of these pesticides have to be used to control pests but the danger to non-target organisms became greater (Tagata et al, 1974; Bashamshideen and Subba Rao, 1982 and Bashamshideen, 1984). Studies on the lethal and sublethal effects of organophosphate insecticides have
gained momentum in the past few years especially in freshwater fishes and crabs.

Bivalve molluscs are probably more diverse in form and physiology than any other group of invertebrates. They possess several characteristics which have made them attractive research models for the study of pollution (Cunningham, 1979). However, studies on the effects of pesticides in general and that of organophosphate insecticides in particular on the freshwater bivalves are highly scanty. Hence, an attempt is made in the present study to evaluate lethal and sublethal effects of an organophosphate insecticide, malathion on the freshwater mussel *Lamellidens marginalis*. This study gives in a limited way, an insight of the physiological responses of this animal involving the level of toxicity, the degree of susceptibility and recovery and compensating capacity of the freshwater mussel during exposure of malathion. Further studies involving mussel biochemical changes (enzymatic involvement) could not be undertaken in view of limitations of time and requirement for M.Phil programme.