PREFACE

During the past four decades, the environmental agenda has included, in succession, depletion of the Earth's resources (1960's), regional pollution (e.g. acid rain – 1970's), global change (e.g. stratospheric ozone hole – 1980's) and sustainability (1990's). In the immediate future, international environmental agendas would focus on global changes, pollution, waste disposal, biodiversity, natural and man made risks and hazards, sustainable management of resources, including land and marine resources, fresh water supplies and coastal zones.

The history of ecotoxicology has a clear-cut chronology. And it developed in a sequence lasting for about fifty years, commencing from discovery and passing through different stages like alarm, recognition and maturation, culminating in “Eco” concerns. Regulatory ecotoxicology and scientific ecotoxicology are complimentary. The toxic effects are studied qualitatively to identify the fate of chemicals in organisms, the organs and the physiological functions affected and to assess the molecular mechanisms involved. In general comparative studies are required in order to learn whether experimental studies with a limited range of laboratory models also apply to species living in the natural environment. Assessment of dose response relationship is the most important qualitative aspect of toxicology.

Several petroleum hydrocarbons are priority rated pollutants and are present in high concentrations in certain coastal areas. To understand their impact biological assays are carried out with suitable organisms in the laboratory. The investigated biomarker could be a
xenobiotically induced physiological variation, expressed as cellular, sub-cellular or biochemical components. Changes in physiological processes or alterations in structure and function put together, cellular injury, deformation of cell structures, parasitism and changes in biomass are some of the most important histological and behavioural parameters looked into by investigators to assess oil toxicity on marine biota.

The present investigation has addressed the effects of PHC contaminated culture medium on the morphology, physiology and behaviour of shrimps\(^1\). The shrimp Metapenaeus dobsoni is an important member of the crustacean animal community abounding the oil contaminated benthic regions of Cochin backwater system. Since it is known that true pollutants can disrupt the sustainability of ecosystems by its effect on species, populations and communities, a representative species was used for the study. The results discussed in this work is bound to help in understanding the ecotoxicant resistance that the animal may display under toxic conditions compared to dynamic steady-state systems in nature.

Oiled rocks and chocolate mousse formation persisting along the coast of Vypeen Island on the third day after an oil spill of unknown origin in April 1998.