4. SELECTION OF THE TEST ORGANISM

The use of bivalve molluscs to monitor the low level pollution in aquatic habitats was initially proposed as mussel watch concept by Goldberg (1975). Farrington et al., (1983) have summarised the utility of mussels in monitoring aquatic pollution.

Topping (1983) pointed out the following characteristic features for an ideal organism to be used as indicator of environmental condition, particularly pollutants.

1. Sedentary nature of the organisms to be representative of the area of collection.
2. Availability of the organism in the study area.
3. Accumulation of the pollutants by the organism without being affected.
4. Sufficiently long lived to allow the sampling of more than one year class if desired.
5. Available in reasonable size giving adequate tissue for analysis.
6. Easy to sample and hardy enough to survive in the laboratory allowing defecation before analysis and laboratory studies of uptake of contaminants.
7. Tolerant of the brackish water.
8. Exhibit high concentration factor allowing direct analysis without preconcentration and
9. A simple relation should exist between contaminant
residues and average concentrations in the surrounding water. All the above characters are found in the bivalve molluscs and hence they are used in the biomonitoring of aquatic pollutants.

The freshwater mussel *L. marginalis* is common and abundant in Chediyan pond and the estuarine clam *M. casta* is found in plenty in Agniar estuary (Fig.4.). Both bivalve species have most of the above characteristic features.

Freshwater mussels are found at the bottom of lakes, rivers and ponds and estuarine clams at the intertidal zone. Mostly they are found buried in mud in the slow running water. The animal is sedentary in habit but prolongs slowly with its muscular foot through the mud leaving a furrow in it. Freshwater mussels and estuarine clams reach deeper places in the mud during the day, while they come out to shallow places by night. Food consists of small plants and animals. However, they are having a special mechanism of filter feeding usually found in aquatic animals of sedentary or semisedentary habits. Feeding is a continuous process. Gills and labial palps are ciliated. Cilia create current of water in which food materials are suspended. This water current enters the mantle cavity by the inhalent siphon. The heavier particles are removed from the surface of gills to the edge of the mantle, where they are pushed backwards and expelled out. The lighter food-particles become attached to
the mucus produced by gills and pushed forward in the direction of the mouth.

These bivalves are able to withstand variations in the hydrological features such as dissolved oxygen, pH, temperature, salinity etc. Therefore these bivalves were chosen for the present study. They were easily collected, transported and maintained in the laboratory till the end of experimental period.