Introduction

The Charales are large structurally complex algae found primarily in fresh water but also in brackish and semiterrestrial environment. They range in size from a few millimeters to over a meter in length and consist of a complex set of branching filaments. Internodes are unicellular (but may be covered by a subsequent growth of corticating filaments) while nodes have a complex parenchyma like organization. Reproductive structures of these green alage have always remained a matter of discussion since long time. Their size and developmental pattern has fascinated phycologists world over. Though belonging to lower group of plants and without lignine, the charales have an excellent fossil record extending back far over four hundred twenty million years and two extant lineages, the Characeae and Nitellae which can be traced back roughly two hundred million years.

Trends in charophyte research and approach towards the charophytes is changing now a days. Large numbers of charophytean species are under threat because of increasing demand of fresh water and change in the climate. Day by day the need to understand, manage and value the elements of environment is becoming more and more greater than ever. The group charophyte is being recognized as the closest living relative to the ancesters of land plants. The capacity to tolerate fluctuating salinity gives a clue regarding the cellular response which is common to all plants. The ecological studies of the charophyte species inform us about water resource management. All these things are indicative of large potential for comparative and collaborative research on these macrophytic algae.

Exploration of charophytes in India is largely confined to northern parts especially the Gangetic plains. Exceptionally few reports from hilly regions from North are available with us. The southern areas are explored but with restricted localities. The central Indian states such as Madhya Pradesh, Maharashatra, Karnataka, Gujarat and Rajastan are meagerly explored for these algae. Since last few years authors are exploring these algae from the western parts of Maharashtra especially the Western ghats. As these areas harbour luxurious climate conducive for both higher as well as lower plants, the

flora has become rich in biodiversity. During our exploration many localities were found harbouring luxurious growth of charophytes. The main aim of this dissertation was to explore Satara district for charophytes, to identify them correctly and corrleate their distribution with that of Indian charophyte flora. However, in addition to this we have also tried to explore their chromosome number. These kinds of studies are being carried out for the first time from this region. Never the less in order to know more and understand these macrophytic algae from this area, further studies are necessary.