



## **Introduction**



R. apiculata

Mangroves are characteristic littoral plant formations growing in sheltered coastline of tropics and subtropics. They have been variously described as 'coastal woodland', 'tidal forest' and 'mangrove forest'. The species constituting mangrove forest are derived from a variety of plant families. The mangroves form, at many places, very extensive and productive forests. Mangroves not only dominate the estuarine habitat, as bridging ecosystem between land and sea, but also define an economic resource.

The mangroves extend up to  $30^{\circ}$  latitude in both the hemispheres (IUCN report, 1981). In the north hemisphere this vegetation is met with in between  $24^{\circ}$  and  $32^{\circ}$ . In the southern hemisphere mangroves are found on the Brazilian east coast, south to the tropic of Capricorn, but on the west, they do not extend beyond  $4^{\circ}$  S (Chapman, 1976). On the east coast of Africa mangrove forest is found up to  $32^{\circ}$  S but on the west coast they do not occur beyond  $10^{\circ}$  S. In Australia and New Zealand, Avicennia is found as far south as  $37^{\circ}$ .

The mangrove vegetation of world has been divided in<sup>1</sup> two large groups by Chapman (1970), the old world mangroves and the new world mangroves. The new world mangroves, essentially, are restricted to the shores of America and West Indies. He has considered Indian mangroves as a separate group. It covers the mangrove forests along the coast of India, Pakistan, Ceylon, Burma and And<sup>a</sup>man, Nicobar Islands. The deltaic mouths of Ganges,

Brahmaputra and Irrawaddy comprise very extensive mangrove forests which are commercially very valuable. The area is known as Sunderbans, possibly because of two reasons, (i) indicating the beauty of the forest or meaning 'beautiful forest', and (ii) the name is after a dominant species locally known as 'Sundri' (Heritiera fomes).

India has about 7000 sq. km. area under mangrove communities (Sidhu, 1963) while the total area reported by Blasco (1975) is 356500 hectares. Duncan (1974) has prepared a list of plants which are halophytes, and suspected to be so, on the basis of habitat. He included plants from 75 families with 177 genera and 347 species. According to Chapman (1970), India has more than 20 mangrove species. Bhosale (1974) has reported 15 species of mangroves and associates to which 6 more have been added by Kotmire (1983).

The studies on mangroves have covered most of the ecological aspects (Navalkar, 1941; Bharucha and Navalkar, 1942; Bhosale, 1974; Joshi and Shinde, 1978; Navalkar, 1973; Rao et al., 1963, 1964; Sidhu, 1960, 1961; and 1963; Untawale et al., 1973 and Kotmire, 1983). So far as taxonomy and autecology are concerned lot of work has been done on Rhizophora mangle and Rhizophora stylosa, however, there is very little ecological work available on Rhizophora apiculata Blume. It has not been mentioned by Cook (1903) in the flora of Presidency of Bombay by this name. Chapman has written an excellent treatise on mangroves in 1976. Nevertheless,

he also did not give any detailed account of Kandelia candel (L) Druce. Tomlinson (1978) has given the account of genus Rhizophora where a comparison of Rhizophora mangle has been made to other species of Australia. Teas and Handler (1979) have given the account of pollination in Rhizophora mangle, whereas Tomlinson and Womersley (1976) have considered some aspects of Rhizophora apiculata. However, literature on Kandelia candel is completely lacking and that of R. apiculata is also desired.

#### Scope of the present investigation

Looking into the necessity of literature on Rhizophora apiculata Blume and Kandelia candel (L) Druce present study was designed. It dealt with taxonomic aspects as well as other aspects of study of individual species (autecology) including flowering period and vivipary. This study further extended to inorganic and organic constituents of the two species. This formed the physiological aspect of the study. The work was undertaken with the view to provide ecological information on Rhizophora apiculata and Kandelia candel. The physiological work was in continuation of the earlier studies carried out in the present laboratory.

This piece of investigation has been presented under different headings namely, Material and Methods, Results and Discussion, Summary and Conclusions and Bibliography. The dissertation ends with two statements, stating the originality of the work.