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INTRODUCTION

Mangroves attracted the attention of investigators from different disiplines centuries ago. The initial outlook was more concerned with morphological features. It was suceeded by ecological approach. In 20th century lot of work was carried out on mangrove habitat as well as plants. The major curiocity in the minds of investigators was regarding the salinity tolerance in these plants. In the second half of the 20th century salt tolerance and ion regulation in mangroves appeared in literature as a major concern. (Viz, Henckel, 1954; Adriani, 1958; Scholander et al., 1962; Lotschert and Liemann, 1967; Scholander, 1968 ; Walsh, 1974 ; Joshi et al. 1975; Bhosale et al., 1983 ; Bhosale and Mulik, 1991; etc.).

A co-relation between endogenous chloride levels and vivipary in mangroves was established by Henckel (1954, 1963.). Walter (1961) discussed inorganic constituents in mangroves and considered three categories of mangroves as salt excreting, salt cumulating and salt regulating. This is refered to as salt economy. Scholander

(1968) postulated that there exsists ultrafilter in the roots of some mangroves like Rhizophora. This type of mangroves were called 'salt excluding.' According to Waisel (1972) there are three types of mangroves, salt excreting, salt accumulating and salt regulating. Joshi et al. (1975) considered mangroves under three headings, salt excreting, salt accumulating and salt excluding. They have given list of mangroves belonging to each category depending upon salt content of leaves and presence or absence of salt glands. Joshi and Bhosale (1982) have rearranged the mangrove species under these categories, where they have listed Acanthus as salt accumulating type though it has salt glands. Ample work was done earlier on ionic concentration of mangroves (Adrini, 1958; Lotschert and Liemann, 1967 ; Macnace, 1968; and others).

In recent years mangrove management is receiving major consideration and accordingly articles are appering in litrature (Parulekar, 1992; Wafar, 1992; Raddi, 1992.). There are several articles on mangrove ecosystems in "Tropical ecosystems : ecology and management (Singh and Singh, 1992.)". These articles deal with microbial aspects (Agape and Panchnadikar; chandramohan), physiology (Bhosle and Mulik), faunal aspects (Goswami), Palynology and evolution (Caratini; Tissot and Marivs).

Inspite of voluminous literature on ionic concentration of mangroves (including Field,1984,1986,1987) it is obscure how mangroves regulate ions in their body. Field (1984) has discussed the methods of osmotic regulations and stated that Scholander's concept of ultrafilter is not

acceptable. He further has stated (1987) that mechanism of ion regulation is yet to be determined. That means still a lot has to be done regarding process of ion regulation in mangroves. This is more so in case of seedlings. As a matter of fact, mangrove seedlings provided suitable material for expriments, but the problem remained unsolved. Therefore, as a step towards understanding flow of ions (distribution) through mangrove seedlings, present work was designed.

BACKGROUND

This study emerged out from the earlier work from our laboratory. It was reported by Karkar (1984) and Karkar and Bhosale (1986) that young leaves of seedlings contain more ions, especially chlorides, than mature leaves of the seedling. This observation was supported by Kulkarni (1991) where it was found that when Rhizophora propagule was analysed plumule part contained higher levels of ions. These studies needed further probe into ionic distribution in the seedlings of mangroves. Recently, Bhosale, and Mulik (1991) have given strategies of seed germination in mangroves which also remains in the background of present study.

Thus the present study has become very specific and was undertaken only as one step towards understanding ion regulation in mangroves.

SCOPE OF PRESENT INVESTIGATION

It is thought in the present investigation that seedlings of mangroves provide better material for investigation. Moreover, because of different stratgies of

seed germination in mangrove seedlings established on the soil are expected to show an array of behaviour with respect to mineral uptake and distribution. After going through the literature and looking into the work form our laboratory it was realised that the major contribution by weight to the elemental composition is due to four major cations, one trace element and one anion. These are Sodium, Potassium, Calcium, Magnesium, Iron and Chloride. Therefore,the present study was restricted to these elements only. Further, this study is aimed at regulation of absorbed elements within the plant body. The study gives emphasis on data analysis for relative behaviour of different elements in different plants.

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