

ABSTRACT

Marine algae or seaweeds are abundant in the littoral region of the seashore as well as in the sunlit sublittoral regions. The marine algae are one of the important components among the primary producers.

Historical records of marine algal research in Sri Lanka is of remarkable interest. The first algal collection of Sri Lanka was done by Paul Hermann (1646-1695) during his collections in Africa and India. William Ferguson (1836 – 1887), William Henry Harvey (1853), Nils Svedelius (1902) and Børgesen (1936) also worked on marine algae of Sri Lanka. Durairatnam (1951 -1974), a research officer attached to Fisheries Research Station in Sri Lanka published a number of research papers about marine algae in Sri Lanka. After Durairatnam, only a few researchers worked on Sri Lankan marine algae. No serious efforts had been undertaken since then to expand the list of algae for Sri Lanka. The algal collection at the National Herbarium at Peradeniya is not only incomplete but also rather disorganized. The objectives of the present study were multifold. Identification of algal species at selected sites, a study of the ecological and anthropogenic impacts on algal diversity and abundance along the southwestern coast of Sri Lanka, monitor seasonal variations and monsoonal effects were the major objectives. It was also intended to supplement the algal collection at the National Herbarium with better preserved specimens as well as with new species identified during the study. The collections were confined to 4 intertidal areas including reef as well as rock surfaces located along the Southern coast from Site 01 (Akurala) southwards to Site 02 (Hikkaduwa), Site 03 (Dadalla) and Site 04 (Talpe) during the period from January 2000 to February 2002. The reefs showed very characteristic features. These features are important in determining the algal dominance, abundance and seasonal variations. The features of reefs of the four study sites were described explicitly and their biotopes identified.

In this thesis we have also presented comprehensive taxonomic descriptions of the taxa identified during our study. This section is intended to serve as a guide to future researchers of marine algae of Sri Lanka. We have followed the study of Silva *et al.* (1996) for the nomenclature and its ordination into divisions, classes, orders, families and genera.

Altogether, 125 macroalgal taxa belonging to 65 genera and 34 families were recorded along the southwest coast, the composition of which varied significantly among the 4 sites. This record includes 11 new records of the author (*Chaetomorpha spiralis*, *Cladophora laetevirens*, *Cladophoropsis sundanensis*, *Dictyosphaeria versluysii*, *Caulerpa racemosa* var. *occidentalis*, *Avrainvillea amadelpa*, *Dictyota dumosa*, *Jania adhaerens*, *Wrangelia penicillata*, *Microcladia gloria-spei*, *Cottoniella filamentosa*). Considering the total extent of the coastline of Sri Lanka which is 1585 km, this study was able to record nearly 28% of the total records within a coastline length of less than 2% of the total. It is therefore justifiable to state that many new species remain to be discovered if the study can be extended further to the remaining coastline, though there is no linear relationship between distance and number of species. Furthermore the present study was confined to the intertidal areas only. However, if the study can be further extended to subtidal regions as well, the list of marine algae for Sri Lanka can probably be more expanded.

The diversity and abundance of many algae showed marked variations during the course of the year indicating the influence among others of the monsoonal changes of ocean characteristics on the reef flora. The monsoons, which come hard on the coastline from during May to September, play an important role in the algal vegetation of the southwest coast of Sri Lanka. The reefs present a different picture during the two different monsoons. Thus algal vegetation along these sites exhibit seasonal variations based on monsoonal effect.

This study clearly indicates the fact that marine algae are an important natural resource which needs to be preserved for posterity.