
INTRODUCTION

The family Asclepiadaceae consists of 250 genera and about 2000 species (Cronquist, 1981) widely distributed in the tropical and subtropical regions. The Asclepiadaceae consists of two well marked subfamilies, the smaller subfamily Periplocoideae (40 genera and about 200 species) has the translator pollinium mechanism relatively poorly developed and a larger subfamily Asclepiadoideae (210 genera and about 1800 species) with highly developed translator-pollinium mechanism. Among the largest genera of the family are Hoya (150 species), Ceropegia (150 species), Asclepias (150 species), Gonolobus (100 species), Secamone (100 species) and Stapelia (75-100 species). The plants of the family Asclepiadaceae are highly specialized for pollination.

The genus Ceropegia was first proposed by Linnaeus in his 'Species Plantarum'. The generic name Ceropegia Linn. is derived from "Keros=Wax" and "pege=fountain" the flowers look like a mountain of wax. It is an extremely interesting genus of the family Asclepiadaceae which is represented by about 200 species (Bruyns, 1985) distributed over most of Africa, Madagascar, the Arabian Peninsula, the Indian subcontinent, the far east and into the northern part of Australia.

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The flowers of Ceropegia are of curious form, many of them are large and beautifully coloured which attract the worker. Although there are ^a number of species, none of them is of common occurrence. Genus Ceropegia is famous for its rarity and endemism. In recent revision on Indian species of Ceropegia Ansari (1984) reports 44 species from India, out of which 28 are endemic to India. He reports 20 species from Maharashtra, out of which 17 are endemic to the state. He also says

that most of them are rare and endangered species.

The genus Brachystelma R.Br. is represented by about 13 species in India. The species are extremely of rare occurrence and are restricted to small areas. It shares common character with Ceropegia in having tuberous roots. The tubers of both genera are edible. These two genera are famous for endemism and rarity.

The species of both the genera are not of much economic importance but they are extremely interesting from botanical point of view. As the species of these genera are difficult to collect due to rarity and occurrence in rainy season in difficult habitats, very little work has been done on botanical aspects. Every species of Ceropegia is very distinct in floral morphology and nobody can go wrong in their identification.

The significance of the study of the genus Ceropegia and Brachystelma has been increased due to their edible tubers. The tribal people and the wild animals destroy the underground tubers to quench their hunger. Similarly destruction of the natural habitats due to deforestation and road sliding, various species of both genera are becoming rare and rare doubting their existence in near future.

Therefore keeping in mind the view of conservation of these species and bringing them under cultivation as ornamental plants, the present work was undertaken. Cooke (1904) has rightly said that the home gardens can be good conservatories for these species. All the mentioned species in present work are under cultivation in botanical gardens of the department and the curious flowers make them centre of attractions.

The edible tubers of Ceropegia and Brachystelma are starchy and somewhat bitter in taste. The tubers of Ceropegia are used as a nutritive tonic in the bowel complaints of children that cure dysentery and diarrhoea. The alkaloid - Ceropegine is extracted from the tubers of C. bulbosa and this is used in Bihar in colds and eye diseases (Kirtikar and Basu, 1975). The leaves of C. bulbosa are acidic and are used as vegetable. (Agarwal, 1986). C. woodii and C. juncea are cultivated in gardens as an ornamental and succulent plants.

Although these two genera are of little economic importance, they are very interesting from botanical point of view as they are very rare, endemic and also endangered. Literature survey shows that there is very little work on both of these genera. The species of these two genera need careful attempts to conserve them.

In present investigations, attempts have been made to relocate the species and bring them under cultivation in botanical gardens of the department through tubers and seeds collected from natural habitats. As there is little work on Ceropegia and Brachystelma, author has tried to study external morphology (both in nature and in cultivation), stem, leaf, petiole anatomy, cuticular and trichome studies and starch analysis of 15 species out of which 13 belong to genus Ceropegia and 2 to genus Brachystelma.

In present thesis, the introductory Chapter-I deals with the introduction of the subject.

The review of literature on family Asclepiadaceae in general and on genus Ceropegia and Brachystelma in particular has been summarized in Chapter-II.

Materials and methods are described in Chapter-III.

Chapter-IV forms a main part of the thesis which incorporates data on detailed field observation, distribution of different species in Maharashtra, external morphology, stem, leaf, petiole anatomy, cuticular and trichome studies and starch analysis of 15 species.

In Chapter-V, the results are discussed with reference to relevant and pertaining literature. Finally summary and conclusions are given at the end of discussions.

References are cited in bibliography at the end of thesis.