

INTRODUCTION

The Commelinaceae are familiar to Indian botanists largely through the native genera *Murdannia*, *Rhopalephora* and *Cyanotis* and through a variety of tropical species commonly cultivated as houseplants and garden ornamentals. Some Commelinaceae are used in introductory biology or botany laboratories to demonstrate cytoplasmic streaming and plasmolysis. Species with large chromosomes have been employed in research on chromosome structure and karyotype evolution. Certain *Tradescantia* clones have been used to test the mutagenicity of airborne substances (Schairer *et al.*, 1982); however, the members of this family are little utilized by man.

Family Commelinaceae as defined by Cronquist (1981) comprise 50 genera and about 700 species, widely distributed in tropical and sub-tropical regions of the world. Peninsular India and the foothills of Himalayas to Thailand and Southwestern China is major center of diversity for Commelinaceae (Faden, 1998). Recently, Faden (2000) reported about 41 genera and 640 species in the family Commelinaceae distributed mostly in the tropical and warm temperate regions of the world. It is represented in India with 14 genera and 85 species (Karthikeyan and Jain, 1989). According to Ahemdulla and Nayar (1987) seventeen species and three infra-specific taxa of the family are endemic to peninsular India. In Maharashtra it is represented by 10 genera and 51 species (Sharma *et al.*, 1996) and well distributed all over the state. The members of the family show wide range of variation in morphological, anatomical as well as cytological characters.

In spite of greater diversity, high degree of endemism and rarity of some taxa, the family Commelinaceae has been largely neglected taxonomically in India with not some exceptions like Rao and Kammathy (1960-1972). Problem in preserving deliquescent flowers have made the family difficult to study from

herbarium specimens. These might be some of the reasons for the lack of revision or monographic work on Indian Commelinaceae.

A thorough and extensive study is essential to have a complete data on the occurrence and distribution of this family in India. Such extensive studies may also lead to the discovery of hitherto undescribed species. The present study “Cytomorphological studies in Commelinaceae R. Br.” is a beginning towards this endeavour.

With the above view in mind the present study in Commelinaceae was undertaken with following objectives:

- A. Collection, identification, distribution and present status of family Commelinaceae from the study area.
- B. Anatomical studies.
- C. Palynological studies.
- D. Cytological studies.
- E. Seed morphology and
- F. Cladistic analysis of genus *Murdannia*.

Attempts have been made to achieve above objectives and the results are reported in the present dissertation.

The dissertation entitled “Cytomorphological studies in Commelinaceae R. Br.” is divided into five chapters. **Chapter- I** represents a general account of the family Commelinaceae. **Chapter- II** deals with the ‘**Review of Literature**’ in which available literature on the subject has been reviewed. **Chapter- III** comprises ‘**Materials and Methods**’ employed in the present investigation; while **Chapter- IV** deals with ‘**Results and Discussions**’. The significant findings are briefly summarized in the **Chapter- V: Summary and conclusions**. The literature cited in the dissertation is listed in ‘**Bibliography**’.