

I- Introduction

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The family Amaryllidaceae comprises about 85 genera and 1100 species (Ahmedullah and Nayar, 1986) distributed widely in tropical, subtropical and even warm temperate regions of the world. The members of this family escape drought period by means of underground bulbs or rhizomes. This is an important ecological adaptation shown by members of the family as well as the members of family Liliaceae and Araceae. Members of the family Amaryllidaceae are mainly of horticultural importance, however, number of species are of medicinal as well as food value. The family is also interesting from cytogenetical point of view and forms an ideal material for such studies.

The genus Crinum is one of the most interesting genera of the family Amaryllidaceae. The number of species recorded in the genus ranges from 60 (Hooker, 1894) to 165 (Wealth of India, 1950), which indicate the taxonomic difficulties in recognition and delimitation of species. Incomplete development of genetic barrier in Crinum species permits interspecific breeding in nature leading to intermediate forms complicating the problem of species delimitation and recognition. These intermediate forms survive and spread in nature because of their ability to reproduce vegetatively. Thus each species shows great variability in general morphology. Existence

of species complexes in bulbous plant is well known in Liliaceae (Yadav and Dixit, 1990) and similar complexes are found in genus Crinum. The species of Crinum are yet to be stabilized and studies on the genus indicate that the group is still actively evolving through the process of hybridization, genetic recombinations and rearrangement (Sharma and Bhattacharya, 1956; Bose, 1962, 1965; Jones and Smith, 1967; Khoshoo and Raina, 1968; Raina and Khoshoo, 1970; Vijayavalli and Mathew, 1992).

Species of Crinum are ornamental perennial herbs propagated vegetatively through underground tunicated bulbs. They are also of therapeutic value in popular medicines. Majority of the species of Crinum are distributed in tropical and subtropical parts of both hemispheres. A greater concentration of species is found in tropical Asia, Africa, Australia and America.

Genus Crinum is represented by 12 species in India (Karthikeyan et al. 1989), of which 7 are reported from Maharashtra. Of the 7 species recorded from Maharashtra, 3 are endemic to the state. The endemic species viz. Crinum brachynema, C. eleonora and C. woodrowii are so far known only from their type locality - Mahabaleshwar.

In present investigation, attempts have been made to study morphology, anatomy, palynology and cytology

of Crinum species occurring in Maharashtra. The thesis is divided into five chapters.

The Introductory Chapter - I incorporates the introduction to the subject.

The Chapter - II, on review of literature, summarises the previous works on family Amaryllidaceae in general and genus Crinum in particular.

The Chapter - III, on materials and methods, explains the methodology followed during experimental work.

The Chapter - IV, on observations, forms a main part of the thesis which incorporates data on field observations, distribution, morphology, palynology, anatomy, cytology and hybridization of Crinum 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 discussion.

Detailed references are cited at the end of thesis under bibliography.