Introduction

INTRODUCTION :

Family commelinaceae as defined by cronquist (1981) consists of about 50 genera and 700 species, wide spread in tropical and sub tropical regions. Wide spread genera like **Floscopa, Aneilema**, and commelina are found distributed through out the tropical belt. Genera like **Pollia, Cyanotis and Forrestia** are found in trophical zone of Asia and Africa, while **Palisota, Buforrestia, Coleiotrype, Anthericopsis** and **Polysphatha** are found in trophical Africa. About 16 genera are found restricted to trophical America. **Sphatholirion** is distributed in Malayan region and Western part of China, remarkable for its infloresence perforating the base of sheath; Occur in West Africa **Guianas**, Similarly **Coleotrype**, with inforesence perforating leaf Sheath, Occures, - In East Africa and Island of Madagaskar.

The family commelinaceae is represented in India by about 14 genera and 85 species. In India (Karthikeyan and Jain (1989)) The morphology of family is very interesting, and shows great diversity in infloresence and flower characters, however it forms very natural assemblage with well defined genera. The position of these genera and their inter-relationship is still contraversial aspect. Earlier monographs ~~like~~ (Clark (1881); Bruckner (1930); Woodsoon (1942) and Rohwder (1956)) have divided the genera in to two major groups, based on either the stamen characters of the infloresence, the Tradescantieae and Commelinieae. Clarke (1.c.) included a third tribe Pollieae, as well as Pichon (1946), and Brehan (1966), however, grouped the genera into ten and fiften groups respectively though on the basis of completely different characteristics.

Fairly good cytological work has been done on Commelinaceae by Brenan (1966). Jones and Jopling (1972), Rolla Rao and Kammathy (1961 to 1968), with reference to classification of commelinaceae. Similarly cytological work have helped in understanding the species complexes in some genera like, **Commelina**, **Cyanotis**. Wide spread polyploidy among the Indian members has also been recorded(Rao Rolla and Kammathy (1964); Rao et.al. (1970).

Among the monocotyledon family commelinaceae is found to be very ideal plant material for cytological work. Extensive cytological work has been done on some genera like **Tradescantia**, **Rhoeo**, **Setcreatia**, **Commelina**, **Cyanotis** etc.

Although most of members of family commelinaceae grow as weeds, some of them are of arnomental value. The arnomental includes **Zebriha pendula** Schhizi. The wandering Jew is a common house plant. **Rhoes spathacea** swartz is often cultivated in green houses, and the species of **Tradescantia** spider wort are used as garden arnomentals.

Genus **Cyanotis** D.Don. consists of about 50 species, distibuted in tropics and subtropics of the world. Hooker (1897) described 16 species of the genus from British India. Fischer (1925) recorded 9 species from Madras Presidency; and raised **Cyanotis vivipara** and **Cyanotis kewensis** to a generic rank **Belosyanpsis**, since these species have terminal or sub terminal Infloresence, not subtended by biseriate bract. Cook (1907) recorded 7 species to be occuring in the Bombay Presidency. Blatter (1928), Separated **Cyanotis Sahyadrica** Blatt. from

Cyanotis tuberso Roxh. and named **Cyanotis concanensis** Hassk by Rolla Rao (1966).

Shetty and Sharma (1955), Shetty and Subramanyam (1962) and Rolla Rao and Kammathy (1962), suggested that **Cyanotis axillaris**, L.D. Don. and **Cyanotis cuculkata**, (Roth) which have axillary non scorpioid infloresence, should be raised to a generic status. Chikkannaiah (1960) observed an occurence of Cleistogamy in areal flowers of **Cyanotis axillaris** L.D. Don. At present, genus **cyanotis** is represented by 16 species (by Karthikeyan and Jain (1989)). Some species of **Cyanotis** form a species complex and many times one can find difficulties in dilimiting the taxa. Polyploidy has been reported in some species such as **Cyanotis tuberosa** Roxb. (n = 12, 24, 36) by Raghavan and Rolla Rao (1961).

The cytological studies have helped in understanding. the different species complexes in **commelina, Cyanotis** and the other common genera. However, different populations, collected from different habitats indicated differences in Kanyotype with in members of same species (Behattachrya (1975)). With this view in mind, in priliminary survey of the present investigation various forms of **cyanotis** species varying greately in external morphology, at various parts of South Western Maharashtra have been observed. Therefore present investigation was further undertaken to understood species complexes in genus **Cyanotis**, by studying Karyomorphology of **Amischophaselus cucullata** (Roth) Rolla Rao (C. **Cucullata** (Roth), **Cyanotis concanensis**, Hassk (C. **Sahyadrica** Blatt.) **Cyanotis cristata** (L.) D. Don. **Cyanotis fasciculata**, Heyne and **Cyanotis tubersoa**, Roxb. and their different forms collected from different localities.

In present investigation attempts have also been made to study external morphological attributes, phenology, distribution and their relationship with chromosome number and Karyotype. Meiotic studies were also made to understand species complex.

The thesis is divided in to five chapters. The introductory chapter I deals with introduction to the subject, and significance of the work.

The reviw of literature on family commelinaceae in general and genus **Cyanotis** in particular are summerised in Chapter II.

The material and methos are described in Chapter III.

Chapter IV forms a main bulk of thesis, which includes detailed data on field observations, distribution of species, external morphology, karyomorphological studies, and meiotic analysis of **Cyanotis** and **Amischophaselus** species.

The resuls are discussed with reference to relevant and pertaining literature, in Chapter V.

Summery and conclusions are given at the end of discussion.

The detailed references are cited in, "Bibliography" at the end of thesis.