MATERIALS AND METHODS

Herbarium and literature Survey–

All relevant information related to the family Commelinaceae was collected from the various sources, such as libraries of universities, institutions and information retrieval systems. Electronic sources like internet and info-net facilities were utilized. The Biodiversity Heritage Library, a consortium of natural history and botanical libraries (www.biodiversitylibrary.org) and Botanicus from the Missouri Botanical Garden Library (www.botanicus.org) were the main sources to retrieve the literature sources.

Specimens of almost all the species been studied from the herbarium specimens situated at Central National Herbarium (CAL), Botanical Survey of India, Western Circle Herbarium, Pune (BSI), Madras Herbarium, Coimbatore (MH), Blatter Herbarium, Mumbai (BLAT), Herbarium of Calicut University, Calicut (CALI), Herbarium of Eastern Circle, BSI, Shillong (ASSAM), Herbarium of St. Joseph College Devgiri, Kozikode (DEV), Herbarium of Port Blair, Andaman Circle, BSI (PBL), Herbarium of Madras Presidency College, Chennai and Herbarium of Shivaji University, Kolhapur (SUK). Photographs of Herbarium sheets (types and authentic specimens) acquired online from C, E, G, K, LINN, US, NY, P, PRE, SING, and W. All the studied species were evaluated for their threat status using IUCN Red List of Threatened Species [Version 2012.2].

Field survey, documentation, photography, illustrations and herbarium preparation–

Extensive and intensive field trips were conducted throughout India for the collection of specimens. Andhra Pradesh, Sikkim, West Bengal, Uttarakhand, Karnataka, Tamil Nadu, Kerala, Goa, Maharashtra states and their forest areas were visited during flowering and fruiting seasons. Specimens were collected and ecological notes were made for every population. When possible, detailed notes were made of vegetative and reproductive morphology, including phenology. Morphological characters of all the specimens were studied critically. Detailed
terminology in Commelinaceae, based on Faden (2000) revised Handbook to the Flora of Ceylon. Illustrations made by using rotring isograph inking pens. Colour photographs of the flowers and sometimes of the inflorescence and habit were taken using Olympus SP 550 uz digital camera. Digital images were edited and assembled in the form of plates using Adobe Photoshop 7.0 (San Jose, CA, USA). The images of dry, mature capsules were carried out under a stereomicroscope Leica S8 APO. The seed surface sculpturing was studied by using Scanning Electron Micrographs JEOL-JSM– 6360. Major plants were cultivated in the Botanical Garden, Department of Botany, Shivaji University, Kolhapur since 2008 until the present.

The herbarium specimens of appropriate size with relevant parts were collected from the field and sealed in polyethylene covers after treating with formaldehyde. Herbarium sheets prepared following wet method (De Vogel, 1987). The dried specimens were mounted on standard handmade paper (28 x 42cm), labeled properly and accession numbers were given to each specimen according to the collection date and year [e.g. year and number of collection = first collection of a year 2009 represented as 0901 (excluding some earlier collections) see Appendix I]. Poisoning was done with mercuric chloride and all herbarium specimens are deposited at SUK. Some duplicate herbarium specimens were distributed at various herbaria like ASSAM, BLAT, BSI, CAL, CALI, MH and US.

Identification, citation and photographic sources–

The specimens were identified by using earlier monographs, regional floras, publications, etc. The identity of the doubtful species was confirmed with the type material placed at various herbaria, protologues and taking opinions from the field experts. Nomenclatural doubts were discussed with expertise in nomenclatural fields. Author names were given following ‘Authors of Plant Name Index’ by Burmitt and Powell (1992). Acronyms of herbaria were used according to Index Herbariorum (Thiers, 2011). Nomenclature followed as per Vienna Code (McNeill et al., 2006) and the International Plant Names Index [IPNI: http://www.ipni.org/].