PREFATORY NOTE

The pollen grain constitute the haploid male reproductive unit of the flowering plants. They are single celled, with an inner intine and an outer exine wall, the latter of which is both protective and diagnostic of the mother plant it belongs to. The architectural patterns of the exine surface together with other morphological characters of pollen provide direction in considerations of plant taxonomy and evolution, at various taxonomic levels, including biological variants such as ecotypes, genotypes etc. Pollen morphology is now conveniently used for population screening with the aim of identifying improved genetic resources. In the above background the coconut plant (Cocos nucifera Linn.), which has been taken for the present study with the aim of characterizing the pollen biodiversity and to fix morphological parameters for use in genetic resource characterization of the coconut plant.

The material for the present study had been procured from the genetic resource collection of the coconut maintained at the Central Plantation Crops Research Institute, Kasargode, Kerala. The pollen material has been processed by the acetolysis method and characterized both by means of Light Microscope (LM) and the Scanning Electron Microscope (SEM). A total number of 44 varieties representing a vast geographical area covering South America, Africa, Pacific Islands, Indonesia, Philippines, Vietnam, Malaysia, Sri Lanka,
and India covering Andaman and Nicobar Islands, Lakshadweep and the coastal states of Goa, Kerala, Tamil Nadu, Andhra Pradesh, and Orissa.

The architectural pattern of coconut pollen is unique in the whole group of flowering plants by virtue of the fact that it has a polar cap formed of powdery granules, extending to the other parts of the grain in various forms. A variety of ornamentation patterns have been noticed on the lateral surface, which along with other characters, provided a base for applying pollen morphology in varietal identity, at the same time as providing information, on the impact of diverse coastal ecology of the various countries, each represented by the respective coconut cultivars.

Apart from providing information on genetic resources, pollen morphology has given directions to the possible routes of migration of coconut palm from its original home in South America via the seas, to the various countries by means of the fruits. The results of the present study has added a new dimension to the application of pollen morphology in plant ecology, biogeography and related subjects, apart from substantiating the earlier findings on the application of pollen morphology in plant taxonomy and evolution at the cultivar levels.