CHAPTER 1

I N T R O D U C T I O N

Because of its beauty, lastingness and fragrance the orchids have a great aesthetic value in human life. The additional advantages with the orchids are that the whole plant can be used as internal decoration and can easily be shifted from one place to another. Most orchids are epiphytes and grow in humid climate, and the hills and forests of the Eastern India with the variety of their orchid-content have comprised a valuable national wealth.

The classification of the orchids has been attempted in various ways but all of them followed the conventional method of analysing the gross morphological characters.

In enumerating the taxa in his famous volumes of publication entitled "The Flora of British India", J. D. Hooker (1890) has accounted for the previous work on classification and nomenclature and treated Orchidaceae under five tribes - the first one being Tribe Epidendreae which conforms the material for the present study. This has been followed by numerous publications suggesting addition or deletion, modification and incorporation, and also other forms of changes. Particular reference may be made to the work of Pfitzer (1897), King and Pantling (1898), Schlechter (1926), Holttum (1953), Dressler and Dodson (1960), Garay (1960), Hara et al. (1978) and Dressler (1981).

The scope of the present work, however, is basically not the problem of classification, nomenclature or phylogeny, but to evaluate the bearing of anatomical characters and to examine the validity of the views of earlier workers on the subject concerned.

The modern tendency of the research is to adduce evidences from different lines of work, to synthesize the results, to indicate phylogeny and to propose classification with a better satisfaction. The celebrated anatomist Bailey (1951) expresses his opinion that data from morphological, embryological, cytological and histological studies should be considered in classification and tracing the phylogeny. Turril (1958) observes "Greatly improved classification results when all determinable characters derived from morphology, anatomy, cytology, genetics, phytogeography, ecology and even pure physiology are used." Ogura (1964) has also expressed a more or less similar view.

The Eastern Himalaya is very rich with varieties of orchids and for convenience, those belonging to the first tribe of Hooker, i.e., Epidendreae, have been undertaken for the present study. In the sub-chapters under observation nomenclature and systematic positions of the genera has been followed strictly as enumerated by Hooker, except in a few cases which were not listed in that publication, e.g., Oberonia falcata King and Pantling

and Bulbophyllum rigidum K. and P. Current valid nomenclature (including selected synonyms) and the change of systematic position of the genera have been cited and discussed in the chapter No. 6 (Conclusion) of the present work.

Hooker fil. (1890) enumerated Agrostophyllum callosum Reichb. fil., which has been splitted by King and Pantling (1898) into two taxa, namely, A. callosum Reichb. fil. and A. brevipes K. and P. Both of them have been incorporated in the present study. Similarly, Liparis longipes Lindl. var. spathulata Ridley as cited by King and Pantling has also been included in the present work under the genus Liparis Rich. of Hooker fil.

The genus Trichosma Lindl. had been placed between Cryptochilus Wall. and Coelogyne Lindl. by Hooker f. Trichosma suavis Lindl. has later been subjected to revision of nomenclature and is currently called as Eria coronaria (Lindl.) Reichb. fil. In the present investigation only one species of Trichosma, viz., T. suavis Lindl. could be incorporated and in view of the presentation of comparable and contrasting characters of this species with those of the other taxa of Eria worked out herein, the figures have been placed together.

Species No. 66 and 67 of the list provided under MATERIALS AND METHODS were collected from Takdah Orchid Centre, labelled as Arundina agnesia and A. chinensis respectively. But verifica-

tion from the available literature indicated that the so-called A. aspesia is actually fitting with A. chinensis Blume and A. chinensis with A. minor Lindl. In the present investigation this corrected nomenclature has been adopted.

The present investigation intends to accumulate informations regarding internal organization of the root, stem (normal and modified) and leaf of the available representatives of genera under tribe Epidendreae. For each of the genera studied, a few species has been examined in view of making a comparative study and finding out stable characters within any genus. In some cases where the taxa of any particular genus show a high degree of morphological variation and the availability of the material was not difficult, extra number of species has been worked out so that each morphological type may have more than one representative to facilitate analysis and comparative study.

Under the first sub-chapter of observation data on gross morphological characters has been enumerated more or less as a routine-work introduction of the problem. The statements made on the subject, however, do not follow the conventional method of taxonomic work and more emphasis has been laid on describing the vegetative organs which, in some cases, appear to be quite significant but unfortunately failed to receive due attention from the taxonomists. Because of inadequacy of the material such

morphological observations could not be made in the case of Spathoglottis plicata Blume.

The data collected in course of the present investigation has been analysed to attempt interpretation on the inter-relationship between the taxa in specific as well as generic levels and wherever necessary comparative charts indicating similarity and dissimilarity have been provided. In addition, attempts have also been made to analyse and evaluate the significance of the internal structure, particularly, with respect to the distribution of vascular bundles in the normal, apparently normal and modified forms of the stem and suggestions have been made on the morphological nature of these simple or complex organs.