Taxonomic evaluation in the perspective is the biological characterization of a species the basic unit of taxonomy. But, the concept of a species has undergone changes almost keeping pace with the change of time. The Linnaean (1753) species was mainly characterized by morphological features. Later, the evaluation of such a species was based on the morphogeographical characters. With the advocacy of the theory of evolution by Darwin (1859) the species concept received a new approach. It is seen that the basic criteria of classification as considered by him were morphological characters. Recently Davis and Heywood (1963) have wisely included all these various definitions of species under two classes: a) "Taxonomic" (embracing orthodox, morphological, morphogeographical etc.) and b) "Biological" (embracing all the new concepts of species).

The "taxonomic" definitions are also called as -taxonomy. A rapid change of ideas of orthodox taxonomy seems to have gained an impetus with the theory of inheritance by Mendel (1865). Thus, according to Emerson (1945), a species is a genetically distinctive, reproductively isolated natural population. On the other hand, Stebbins (1950) is of the opinion that, species are natural units
The cytotaxonomic approach in determining a species objectively, according to Lawrence (1951) is whether a particular taxon deserves the rank of species or is of interspecific level. Consequently, there appeared experimental taxonomy, wherein the "taxonomic" species were subjected to experimental investigation. Thus, we find the definition or concept of species in a state of controversy. Defining the biological species Valentine and Löve (1958) have said that, "an objective criterion of a biological species, something which can be determined by experiments; has a biological meaning in that it marks a certain stage in the process of evolutionary divergency."

Since the last two decades chemical information on a species has become an important characters in the evaluation of a species (Batesmith, 1953, and Alston and Irwin, 1959). Davis and Heywood (1963) have stressed the importance of chemical data in understanding the taxonomic relationships. Thus, the modern taxonomy, has multidimensional approach, where morphological, cytological and biochemical characters are taken into consideration in evaluating a taxon. According to Lam (1959) all the systems of classification must be a compromise, because of the particular selection of
characters, the degree, of precision and unity with which they can be defined. While evaluating a species in the light of multidimensional concepts it is likely that there might occur contradictory results. In such a situation, according to Hesslop, Harrison (1953) and Davis and Heywood (1963), the morphological characters should be given precedence.

Thus, in the present study also, the three aspects of approach, viz: morphological cytological: and chemical are taken into consideration in evaluating the individual species.

Habenaria crassifolia A.Rich:

This species has been collected from various places of different ecological conditions. Blatter and McCann (1931) have described this species as *H. brachyphylla* Reichenb.f. But Hooker.f. (1890) and Duthie (1906) suggest that this is nothing but the synonym of *H. aitchisonii* Reichenb.f. Thus Santapau and Kapadia (1906) are of the opinion that, since, the name *brachyphylla* is not available for *H. crassifolia* though it is the oldest epithet for that plant.

The species is distinctive in having stiff and suborbicular leaves; simple karyotype, and in displaying Br and YG marker spots with Rf values 0.26 and 0.31 respectively and "uncommon" amino acid with Rf value 0.11. Thus,
the species stands as a clear good species.

**H. panchaganiensis**, Sant & Kap:

This is a new species described by Santapau and Kapadia (1959) collected from Panchagani localities. But, the same species was earlier found described as **H. variabilis** sp. Nov. by Blatter and McCann (1932) from the same areas.

The species is distinct in its karyotypic features having 4 pairs of satellited chromosomes. Amino acid analysis reveals an "uncommon" amino acid spot Y with Rf value 0.13. The fact that this species is characterised by Br & YG marker spots with Rf value 0.31 and 0.36 respectively, further evidences the species to be a distinct one.

**H. grandifloriformis**, Blatt & McCann:

This species till recently was in a controversial state and it was earlier described as **Habeneria grandiflora** Lindl by Hooker (1894) and Cooke (1908). The name was revised by Blatter and McCann (1932) as **H. grandifloriformis**. The base for the revision by the latter authors was mainly the size of the flowers and its segments (length of the lip is variable from 14-22 mm). This revised name has been legitimised by Santapau and Kapadia (1959) as
H. grandifloriformis. According to them, though the floral segments show variation in their size, they are fundamentally identical. No notable karyotypic variations were observed in such variants during the present investigation. Hence, the present cytological data is also in conformity to retain the name H. grandifloriformis which is the same as H. grandiflora of the previous authors. The chemical observations also support the view. Thus, H. grandifloriformis is a clear species.

H. crinifera Lindl:

This is the only species of Habenaria which shows both epiphytic and terrestrial habits. The epiphytic habit, lip with a claw and longer midlobe are characteristic of the species. Presence of five pairs of long chromosomes are distinguishing features. The distinctive free amino acid pattern with RBr (=0.24) spot and Br(=0.48) and YG(=0.64) flavonoid pattern establish this taxon as a good species.

Porpax jerdoniana (Wt) Rolfe:

There are various earlier names given by different authors to this species, Viz: Lichenora jerdoniana, Wight; Eria Lichenora Lindl; Eria jerdoniana (Wt) Reichb; Porpax lichenora cooke etc. But after naming this genus as Porpax by Lindley (1845), this species has been named as
Porpax jerdoniana by Rife (1908). These small epiphytic plants are characterised by 2-lipped sepals, lip without tooth and 8 pollinia mass. Biochemical pattern especially of flavonoids is very distinctive with its bright red (R), reddish green (RG) and green (G) fluorescence. Karyotypic study also reveals it to be a distinct species.

P. reticulata Lindl:

Santapau and Kapadia (1966) does not agree with the point that P. papillosa is a different species from P. reticulata as described by Blatter and McCann (1932). They suggest that there are no papillate leaves at the mature stage of the plants based on which Blatter & McCann named it as P. papillosa. Thus, they consider P. papillosa to be conspecific with P. reticulata Lindl. This species is unique in having trilobed, toothed and clawed panduriform lip. Cytologically it is characterised by three pairs of satellite chromosomes. Free amino acid pattern reveals an "uncommon" amino acid spot with pink colour and 0.48 Rf values. Flavonoid pattern is unique and impressive with red, (R) reddish green (RG) and green (G) spots. Therefore, this taxon is a clear species.

Eria reticosa Wight:

Blatter and McCann (1931) have separated a 'co-type'
E. rupestris from E. reticosa by the presence of a bilobed mentum. But Santapau and Kapadia (1966) after thorough study of fresh flowers suggested that there are no differences to keep the two species separate.

The species is characterised by discoid pseudobulbs and large lip. The Karyotype is characterised by 16 medium and 5 short chromosomes. The chemical patterns are very impressive and justify this species as a clear species.

E. mysorensis, Lindl:

Santapau and Kapadia (1966) feel that there is a certain amount of confusion in the literature about the present and related species of E. mysorensis. They suggest that there is no doubt regarding the identity of E. pubescence Wt. with E. mysorensis Lindl. But Hooker, f. (1890) seems to have created the confusion by assigning some of the characters of E. polystachya A. Rich to E. mysorensis Wt. However, Santapau and Kapadia separate the two species by giving the floral characters for E. polystachya having yellow flowers with ovate lanceolate and entire lip. The other Viz: E. mysorensis having white flowers with oblong lip that is constricted in the middle.

The species is characterised by having 16 short and 3 pairs of medium chromosomes. The free amino acid pattern
reveals an "Uncommon" amino acid spot with pink colour (P) and 0.24 Rf value. Flavonoid pattern is impressive with GY & RBr marker spots. Thus the taxon can be considered as a distinct species.

E. exilis Hook.f.:

Blatter and McCann (1931) also called this species as E. minima. They have given the description based on Schlechter's (1926) description of E. microphyton which was later reduced as a synonym of E. exilis by Kränzlin (1901). Thus, Santapau and Kapadia (1966) suggest that, E. minima Blatt & McCann is identical with E. exilis Hook.f. and cannot stand as an independent species. Thus, this species can be readily distinguished by its small nature and undivided lip. The Karyotype is distinguished by 18 pairs of short chromosomes and absence of long chromosomes. Biochemically, it is distinct in having GY & RBr marker spots and an "uncommon" amino acid spot with Rf value 0.19. Obviously this taxon is a good species.

E. microchilos. Lindl:

This species is characterised by yellowish white flowers, lip without lobation, crenulated margin and presence of few gland dots on the margin. The Karyotype is peculiar
by having 5 'B' chromosomes. Amino acid pattern reveals an "Uncommon" amino acid spot with YBr (=0.21) colour. Flavonoid pattern follows the 'Eria pattern' by possessing GY and RBr spots. Thus _E. microchilos_ may be considered as a clear good species.

_E. dalzellii_, Lindl:

This species was earlier given as _Dendrobium dalzellii_ by Hooker (1890). Other authors like Blatter & McCann (1931) and Cooke (1908) have actually fused this with _E. microchilos_. But Santapau and Kapadia (1966) opine that they are convinced of the two species being quite distinct.

This species is specific in having curved inflorescence with creamy yellow flowers with lip having crenulated margins and many gland dots. The Karyotype is characterised by 10 short chromosomes and presence of 10 'B' chromosomes. An "Uncommon" amino acid with reddish brown (RBr) colour and 0.23 Rf value specifies the species. Flavonoid pattern shows GY & RBr spots. Thus, the species is a distinct one.

_Dendrobium mabelae_ Gammie:

This species shows a clear status with its somatic number 2n=38 and with its typical characters in the Karyotype like presence of more number of short chromosomes.
The presence of Bluish pink (BlP) spot with Rf value 0.48 in the free amino acid pattern and reddish brown (=0.18) and Green (=0.39) in flavonoid spot pattern further typify the species. Thus the taxon can be considered as a distinct good species.

D. microbulbon. A. Rich:

This species is specific in having the plants as minute epiphytes with white flowers having the lip with irregularly denticulated margins. The Karyotype is distinguishable by absence of short subterminal chromosomes. Biochemically it is distinct in having an "Uncommon" amino acid with pink colour (P) (=0.39) and with reddish brown (RBr) and green (G) fluorescent spots as "marker spots." Thus, this species also stands as a separate entity.