SUMMARY AND CONCLUSIONS

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Ipomoea L, a polytypic genus of family Convolvulaceae having 500 species, mostly a large genus of twining, creeping, floating or erect herbs, rarely shrubs or trees, widely distributed throughout the tropical and warm temperate regions of the world. It is also recognised for the various purposes.

In India about 500 species of Ipomoea are found. Out of which number of species have been introduced for ornamental purpose, while some are of medicinal value.

Ipomoea fistulosa Mart. ex Choisy is a South American vine which has been established in waste soils of the coastal plain from Texas to South Carolina, including peninsular Florida. It is revealed from the results of Tokarnia et al. (1960) that prolonged digestion of this plant results in wasting, depression and other ill-defined pathology in sheep, cattle and goats.

In India, Ipomoea fistulosa is introduced as an ornamental plant. However, it is also used for fencing purposes. It is easily propagated by cuttings and can be grown under both rain-fed and irrigated conditions. It is also used as a green manure crop in some parts of South India (Wealth of India, 1959).

It is revealed from the available literature that very little cytological work has been done in the genus Ipomoea and viz. in I. fistulosa. Therefore it was proposed worthwhile to investigate the karyotypic pattern, meiotic behaviour and incompatibility status in I. fistulosa to fullfil the missing gaps in the current literature.

The somatic chromosome number of Ipomoea fistulosa is determined as 2n=30. The length of chromosomes varied from 4.37 μ to 1.55 μ. Somatic chromosomes are classified into 8 types on the basis of their length, centromeric position etc. In general the chromosomes are small, with median and submedian centromeres. The karyotype is symmetrical type and falls in 2B category of Stebbins (1958).

Hooker (1985) has subdivided the genus Ipomoea into six different subgeneras However, the present karyotype studies and karyotype studies made by other workers suggest that subgrouping of the genus neither have any phylogenetical bearing nor are they to be considered as natural groups. They may however be maintained for convenience in indentifying species but need not be considered as representing a truely homogenous groupings.

It is also revealed from Table 3 that the genus Ipomoea is a polyploid complex. However, the number of nucleolar chromosomes and ploidy status has not any correlation. It may be taken to suggest that the amount of genus contained within the two satellited chromosomes in

I. fistulosa is sufficient to meet the need of the ribonucleoprotein metabolism of the species or populations concerned.

The studies in karyotype, ploidy level, geographical distribution, tolerance to stressed environmental conditions states that Ipomoea fistulosa is relatively less evolved one, but best fitted to normal and stressed conditions of the environment.

Meiotic studies in Ipomoea fistulosa showed fifteen bivalents at diplotene with an average chisma frequency of 1.22 ± 0.2 per bivalent per PMC. Frequency of univalents is very low. The striking feature of this species is that in majority of the cases the chromosomes show stickiness and spindles are very long and mother cells are very big in comparison to the size of the chromosome (Fig.11). Fertility of the pollen grain is fairly good in I. fistulosa. The studies revealed that the species under investigation is diploid in nature. However, In I. fistulosa indirect methods estimating recombination is also indicated. The study has also shown that most of the diversification of the species have resulted from a level of n=15 chromosome rather than n=14.

Incompatibility study has indicated that Ipomoea fistulosa is homomorphic sporophytic self-incompatible

plant. Microscopic observations of stigmatic surfaces after selfing have shown that there is little change in stigmatic integrity.

In fine, taking into consideration the above aspects of karyotype, meiosis and incompatibility, it can be concluded that Ipomoea fistulosa, relatively less evolved, diploid homomorphic sporophytic self-incompatible plant best fitted to normal and stressed ecological conditions, is best material for understanding various aspects of plant systems.