REVIEW OF LITERATURE

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Cytological studies in the genus Passiflora are restricted only to chromosome number report (Storey,1950). In few cases, the general chromosome morphology has been reported (Beal,1969). Heitz (1927) first studied the cytology of *Passiflora incarnata* L. and reported the chromosome number n = 9 and 2n = 18. He was followed by Bowden (1940,1945) and Storey (1950). Lloyd (1963) reported 2n = 18 and 2n = 36 in *P.incarnata*.

Storey (1950) has studied *P.edulis* Sims. (purple passion fruit) and *P.edulis* Sims. f.*flavicarpa* (Degener (Yellow passion fruit), both have same chromosome number (2n = 18). Darlington and Janaki Ammal (1945) reported the chromosome number 2n $=$ 18 and gave x = 9 as the basic chromosome number of the genus *Passiflora*. This number was doubtless assumed on the basis of 6 species with 2n = 18 and one species which was reported as 2n = 84 ?

Beal (1969, 1971, 1972 and 1975) in his work on the cytology studied in the Australian species; viz. *P.aurantia* Forst., *P.herbertiana* Lindl. and *P.cinnabariana* Lindl. (all 2n $=$ 12 and n = 6) and four exotic species, viz. *P.maliformis* L. *P.seemanni* Griseb; *P.quandrangularis* L. (all 2n = 18) and *P.suberosa* L. (2n = 24). He studied the karyotypes and evolution in the genus *Passiflora* and reported the consistent findings of satellites in the somatic chromosomes in its

different species. Five distinct types of satellited chromosomes were distinguished by chromosome length, centromere position and satellite appearance. The literature on chromosome numbers of various species, species hybrids and sub-specific forms in the genus Passiflora were given by Killip (1938) and Darlington and Wylie (1955).

The recent introduction of chromosome banding techniques has revolutionized cytogenetics by providing information on the complexity of DNA sequences discernible in the form of bands on the chromosomes (Lavania,1978). The chromosome banding study in the genus Passiflora is very meagre. Only the orcein banding technique in some Passiflora species were studied by Dixit (1979).

Storey (1950) studied the meiosis in P.foetida and observed 10 bivalent chromosomes, while in P.edulis f.flavicarpa it was 9 and in P.suberosa it was 12. Beal (1969) studied the meiosis in P.herbertiana, P.cinnabarina and P.aurantia. Some recently introduced species of Passiflora in Australia, viz. P.penduliflora, P.coreacea, P.biflora, P.perfoliata and P.gracilis were 2n = 12, P.cincinnata, P.umbilicata, P.coccinea where 2n = 18 and P.foetida var. hispida 2n = 20 have been studied by Beal (1971).

Masters (1871) in his account of the natural history of the Passifloraceae enumerated about 226 species under 9 genera. Harms (1894, 1925) discussed the family in

Engler's pflanzenfamilien. Killip (1938) has surveyed 365 species of the passifloracae and treated them under the genera Passiflora, Tetrastylis, Mitostemma and Dilkea. Chakravarty (1948) revised the Indian passifloraceae. De Wilde (1972) studied the old world Passifloras and divided them into 3 groups. Green (1972) studied Passiflora in Australia and the pacific. Holm-Nielsen (1974) described new variety P.mixta var. Pilaloense from central Andean region. Routh (1974) contributed to the morphology, anotomy and development of pinnate leaf and concluded that the basic leaf form of the family is represented by trifoliate leaves, with 3 well developed leaflets.

Pollen morphology in some Passiflora species were studied by Fischer (1934), Spirlet (1965), Presting (1965), Huynh (1972), Torne and Raut Desai (1975) and Dixit (1979). Pollination is a main factor in fruit setting. In the genus Passiflora self as well as cross incompatibility exists and it results in poor fruit setting. Information about the nature of incompatibility in the genus Passiflora were given by Cox (1957), Beckett (1960), Knight (1972), Chang (1974) and Wang (1976).

The flavonoids from P.incarnata, P.pulchella and P.quadrangularis were studied by Glotzbach and Rimpler (1968), Lutomski and Mariaada (1969), Applewhite (1973), and Gavaselli (1970, 1974). The presence of harman, harmine and harmaline

were confirmed from the fluid extract of P.incarnata using gas-liquid chromatography (Bennati,1969). P.bryonioides and P.incarnata contains harmone in roots and above ground parts (Poethke, 1970).