

Genetic and Cytogenetic Studies in some Species of the Genus *Crotalaria* Linn.

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Abstract:

A collection of the dominant species of Crotalaria was made from different parts of Nigeria. Eight species in all were assembled. These collections were subjected to morphological, cytological and biochemical characterizations. Intra specific and inter specific hybridizations were attempted. Considerable overlap in their vegetative and floral attributes was observed.

Statistical analysis of the morphological data has shown that vegetative and frutescence features of Crotalaria plants are important in sub generic and species delimitations. This analysis also shows that qualitative and quantitative characters of flowers, fruits and seeds are important in the identification of Crotalaria species.

Observations on the karyotypes and meiotic behaviour of the eight species indicate that six of the species - C. retusa, C. goreensis, C. spectabilis, C. cylindrocarpa, C. calycina and C. comosa have somatic complements of sixteen chromosomes ($2n=16$) each, while two--C. doniana and C. naragutensis--have two accessory chromosomes in addition. The low occurrence of multivalent associations in the diakinesis of each species indicates that the homologues within each genome are considerably distinct structurally. Occurrence of giant cells with large coalesced elements suspected to represent gene amplification is also observed in three species - C. retusa, C. goreensis and C. cylindrocarpa. Attempt is made to speculate on the evolutionary relationships among the species studied.

Keywords: Crotalaria plants/ genetics/ cytogenetics

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