# KARYOTYPE ANALYSIS AMONGST INDIGENOUS *SESBANIA* SPECIES FROM SOUTHERN AFRICA



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# ABSTRACT

Several studies have been undertaken to determine the karyotype of *Sesbania* species occurring in tropical and sub-tropical regions the world over. However, these studies have not been exhaustive.

In the current research, a detailed karyotypic analysis of 13 *Sesbania* species found in southern Africa and collected for the first time by ICRAF was undertaken. These species include; *S. sesban S. macrantha, S. rostrata, S. cinerascens, S. bispinosa, S. microphylla, S. macowaniana, S. pachycarpa, S. sphaerosperma, S. brevipeduncula, S. tetraptera* and *S. coerulascens*.

Using the conventional chromosome techniques, slides were made, observed under the microscope and good spreads photomicrographed.

This study confirmed the opinion that the base number of the genus *Sesbania* is X=6. A chromosome number of 2n=12 for *S. macowaniana, S. pachycarpa, S. sphaerosperma,* and *S. brevipeduncula* however, was a new report. Two species namely; *S. tetraptera* and *S. coerulascens* were found to possess both diploid and tetraploid cytotypes.

Karyotype of species investigated were remarkably uniform. In each species 5 pairs of short and one pair of long chromosomes were present. Considerable similarities in terms of total chromatin length were observed ranging from 14.067 µm in *S. coerulascens* to 11.070 µm in *S. brevipeduncula*. The genus has a symmetrical karyotype as the analysis of both diploid and tetraploid cytotypes reveals. The complement under study is predominantly composed of median and submedian chromosomes essentially, primitive karyotypes that fall in 3B or 4B types of Stebbins classification, (1971).

All species investigated reveal similar morphological traits suggesting that they are closely related and may intercross. Seed size or weight does not necessarily indicate presence or absence of polyploidy. Tetraploid cytotypes recorded suggest that the species

investigated could actually be the pioneer species in this southerly region.