

FEMALE HETEROGAMETY REVEALED BY APPLICATION OF DIFFERENTIAL STAINING TECHNIQUE IN A SPECIES OF LEPIDOPTERA

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ABSTRACT

The mitotic metaphases in males and females of *Sylepta multilinealis* Guen. were studied using in vitro colchicine treatment and differential staining technique of G-banding. Karyotypes prepared from G-banded female somatic metaphases of brain ganglia revealed $2n=62$ with heteromorphic sex chromosome pair ZW, while the male karyotypes ($2n=62$) showed a homomorphic ZZ sex chromosome pair. Z was distinctly recognized as the largest element in the female somatic karyotypes. Pair nos. 1, 3, 8, and 10 had dark G- positive bands at their telomeric ends. Many pairs revealed dark bands and light interbands of different intensity throughout their lengths. Autosomal pair numbers 14, 23 and 28 revealed interband regions lacking in stain at the site of secondary constriction there by depicting their satellite like structures which were otherwise not clear from the normal Giemsa stained preparations. G-banding data for sex chromosomes of Lepidoptera are quite scarce. The sex mechanism study in present species is new to cytology as this is the first report of female heterogamety in *S. multilinealis*. The existence of sex chromosomes, thus represents a derived exceptional condition in Lepidoptera and its appearance in different systems seems to indicate a recurrent evolutionary trend worth further investigation.

KEYWORDS: Lepidopteran Chromosomes, Female Heterogamety, Differential Staining, Somatic Karyotypes, G-Banding