RESEARCH NOTE

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Cytological evidence for holocentric chromosomes in *Pieris brassicae* (Pieridae : Lepidoptera)

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Among insects the holocentric chromosomes is widely observed in orders, Hemiptera, Dermaptera (Hughes-Schrader and Schrader, 1961). Although evidence suggested the holocentric nature of lepidopteran chromosomes, it is still a open question as stated by White (1973). Cytogenetic studies making use of *in vitro* injection of colchicine and conventional Giemsa staining have been carried out. Chromosomal preparations were made from brain ganglia and testes by using NaCl-acetic Carnoy-air drying method. The nature of the centromere and orientation in meiosis of *Pieris brassicae* (Pieridae: Lepidoptera) chromosomes were investigated using irradiation as a tool in this study. The late third or early fourth stage of the instar larvae of *Pieris* were irradiated with Cu-X-radiation at a wavelength of 1.5418 Å, V=30 Kvp and I= 10mA for two minutes. The results of the experiments were as follows:

– Metaphase chromosomes showed no distinct primary constriction even after treatment with hypotonic solution (Fig. 1)

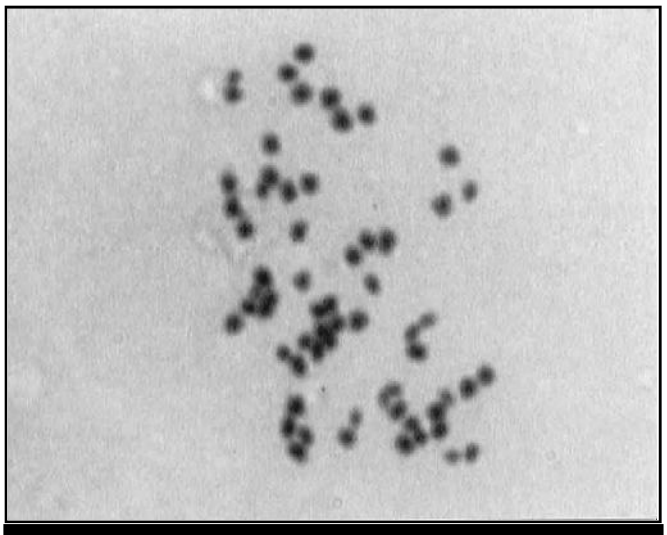

Fig. 1 : Metaphase I

– Chiasmata underwent complete terminalization during diplotene/diakinesis (Fig. 2 and 3)

– Chromosome type mutation including fragmentation were noted in the form of minute chromosomes in metaphase I (Fig. 4)

Holocentric chromosomes has well been studied in species of Homoptera (Hughes-Schrader and Schrader,

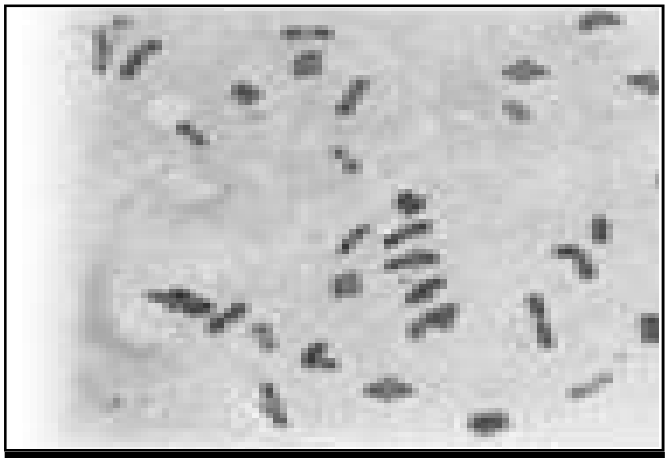

Fig. 2 : Diplotene

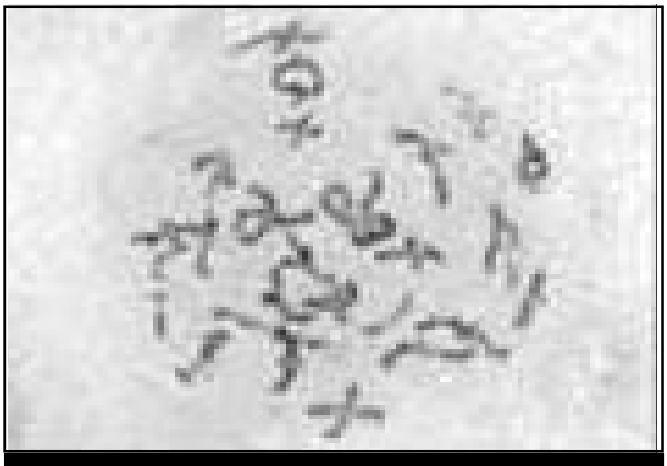

Fig. 3 : Diakinesis