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REPEATED DNA AND CHROMOSOME EVOLUTION IN THREE
TROPICAL GRASSHOPPER SPECIES
THE REPRODUCTION OF CHROMOSOME
STRUCTURE IN THE EVOLUTION OF GRASSHOPPERS
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Robertsonian fusions, heterochromatin and chiasma
distributions in the karyotype evolution of grasshoppers

396

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The karyotypes of grasshopper species of two subfamilies: Acrididae and Oedipodinae (Orthoptera, Acrididae), were studied. The chromosome morphology, heterochromatin localization, the formation of synaptonemal complex and frequency and distribution of chiasmata were analyzed. We revealed two trends in the evolution of grasshopper chromosomes. The first one is reduction of chiasma frequency. This trend is found in the both subfamilies. The reduction of chiasma frequency is accompanied by robertsonian fusions of chromosomes in Acridinae, but not in Oedipodinae. The second trend is the formation of chromosome regions with the restriction of recombination. The restriction of crossing over is due to the absence of chromosome pairing. The regions with reduced recombination are located distally in Oedipodinae and proximally in Acridinae. The opportunity of Robertsonian fusions is supposed to depend on the localization of chromosome regions with restriction of recombination.