



# Physical mapping of 18S and 5S rDNA loci and histone H3 gene in grasshopper species of the subfamily Gomphocerinae (Acrididae)

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**ABSTRACT.** In this study, fluorescence *in situ* hybridization (FISH) analysis was used to determine and compare the numbers and chromosomal locations of two multigene families (rDNA and histone H3) in four Neotropical species of gomphocerine grasshoppers. FISH using the 18S rDNA probe identified a single site on the S9 chromosome of *Amblytropidia* sp and *Cauratettix borelli*, a single site on chromosome M6 of *Compsacris pulcher*, and two sites (chromosomes L1 and L2) in *Orphulella punctata*. By contrast, FISH with a 5S rDNA probe identified dispersion of this sequence in the genomes of the four species, with evidence of intraspecific variations. *Amblytropidia* sp had six to eight FISH signals on autosomal chromosomes, while *C. pulcher* exhibited a signal only on the M5 bivalent. The histone H3 gene was less variable and was restricted to a single pair in all species. The conservation of the numbers and locations of 18S rDNA and H3 genes in conjunction with data from the literature was useful

for evaluating karyotype evolution in this subfamily. The variation in the number and sizes of 5S rDNA sites indicates a process of recent dispersion that might have been mediated by transposition.

**Key words:** Chromosome; FISH; Multigene families