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Chromosome inversions occurring in Uruguayan populations of *Drosophila willistoni*.

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Reports of *Drosophila willistoni* in several localities of Uruguay (Goñi *et al.*, 1997, 1998), near to the southern limit of the geographical distribution of the species (Spassky *et al.*, 1971) moved us to investigate the putative paucity of gene arrangements reported for this species in their borders (Townsend, 1952; Da Cunha *et al.*, 1950, 1959), as well as the occurrence of novel or unique gene arrangements. Only a register exists of the chromosome inversion polymorphism of *D. willistoni* in this Country, from the locality of Melo city, Northeast Uruguay, reported by Da Cunha and Dobzhansky (1954). The present report aims to start the characterization of the chromosome inversion polymorphism of *D. willistoni* populations from Uruguay. Samples of natural populations of *D. willistoni* were obtained at nine collecting sites (three sites in the Capital Montevideo: 34° 48'S; 56° 11'W) and one in each of the following localities: Santa Lucia del Este, Canelones (34° 50'S; 56° 15'W); Cerro El Toro, Maldonado (34° 45' S; 55° 14'W); Boca del Sarandi, Rocha (33° 58'S; 53° 43'W); Sauce de Cebollatí, Lavalleja (33°45'S; 54°33'W); Tacuarembó, Tacuarembó (31° 41'S; 55° 59'W); and Arroyo Gajo de Lunarejo, Rivera (31° 06'S; 56° 00'W), in Uruguay. The flies were obtained as adults around conventional banana baits and/or as adults emerging from rotten fruits of *Syagrus romazoffiana*, *Ginkgo biloba*, *Doryalis caffra*, *Butia capitata*, and *Citrus sinensis*. Third instar larvae of isofemale lines of each sample were dissected and processed according to Ashburner (1967). All samples were chromosomally polymorphic for paracentric inversions. In contrast to the situation that occurs in *D. willistoni* populations of the neighbouring Brazilian Southern State Rio Grande do Sul (Valente and Morales, 1985; Valente *et al.*, 1993), both arms of the X chromosome are polymorphic. In this chromosome, we observed 4 inversions, being two in the left arm (XL) (Figure 1a,c) and two in the right chromosomal arm (XR) (Figure 1b,d). In the autosomal IIL (the left arm of the second chromosome), a complex arrangement (D+E), also common in Brazil, plus 5 single inversions were detected (Figure 2). Four single heterozygous inversions were detected in the right arm of the second chromosome (IIR) (Figure 3)Uruguayan populations of *D. willistoni*, and six were found in the third acrocentric chromosome (III) (Figure 4). It is interesting to note the inversion III N, that seems to be endemic from Uruguay, was only reported previously in a single larva in the sample from Melo city by Da Cunha and Dobzhansky (1954). The XR B1 inversion also appears to be endemic from Uruguay, and there are no previous registers of its occurrence in other natural populations. The first results suggest that in the Uruguayan populations, several inversions still segregate, despite the fact that they need to face an environment very different from those found in the putative center of the species

dispersion - Central Brazil (Da Cunha *et al.*, 1950). The uniqueness of certain arrangements and of the Uruguayan populations of *D. willistoni* deserves to be further studied.

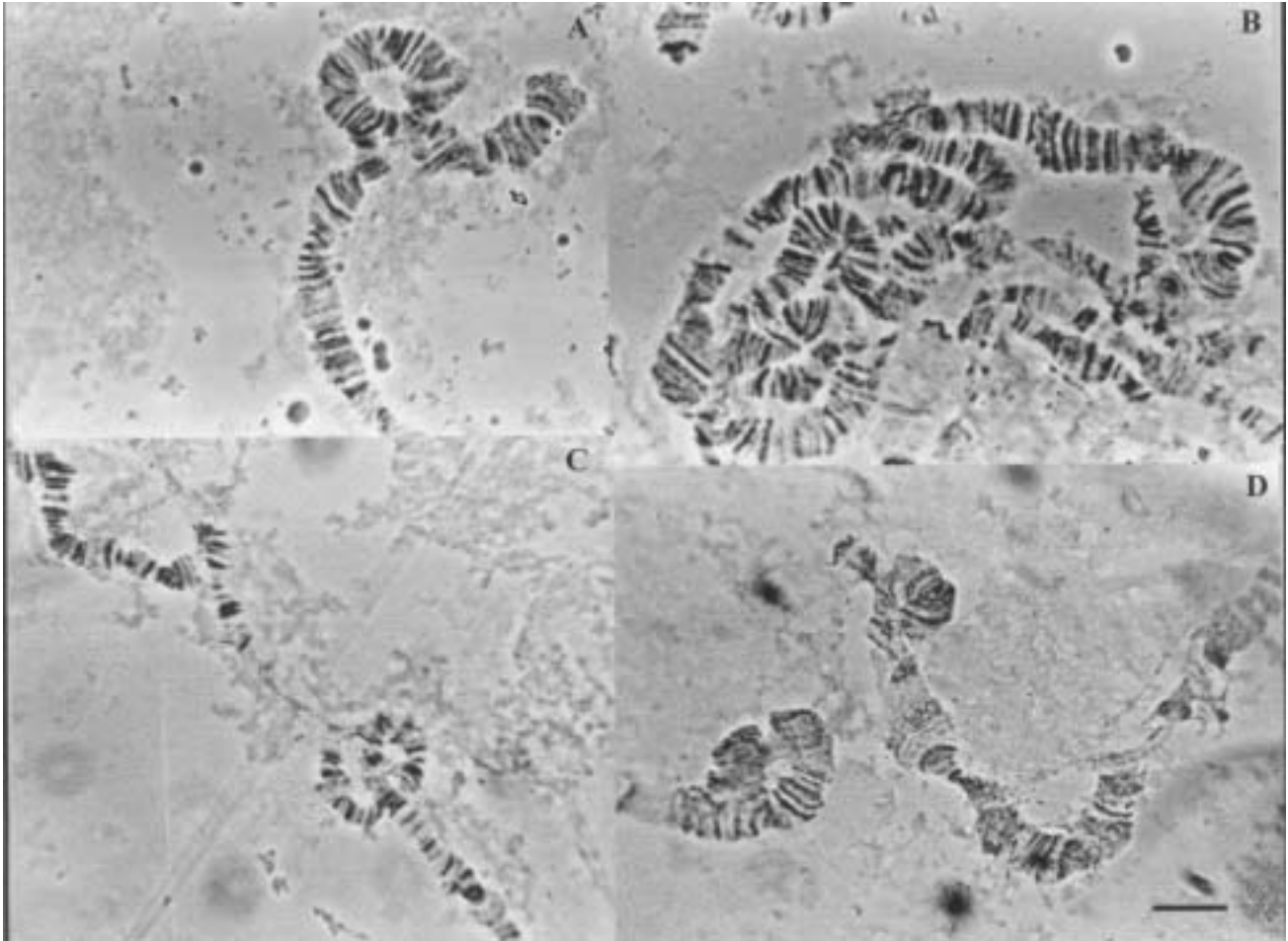


Figure 1. Heterozygous inversions of the X chromosome of *D. willistoni* populations from Uruguay. (a) XL POA 3; (b) XR E; (c) XL A; (d) XR B1. Bar = 10 μ m.

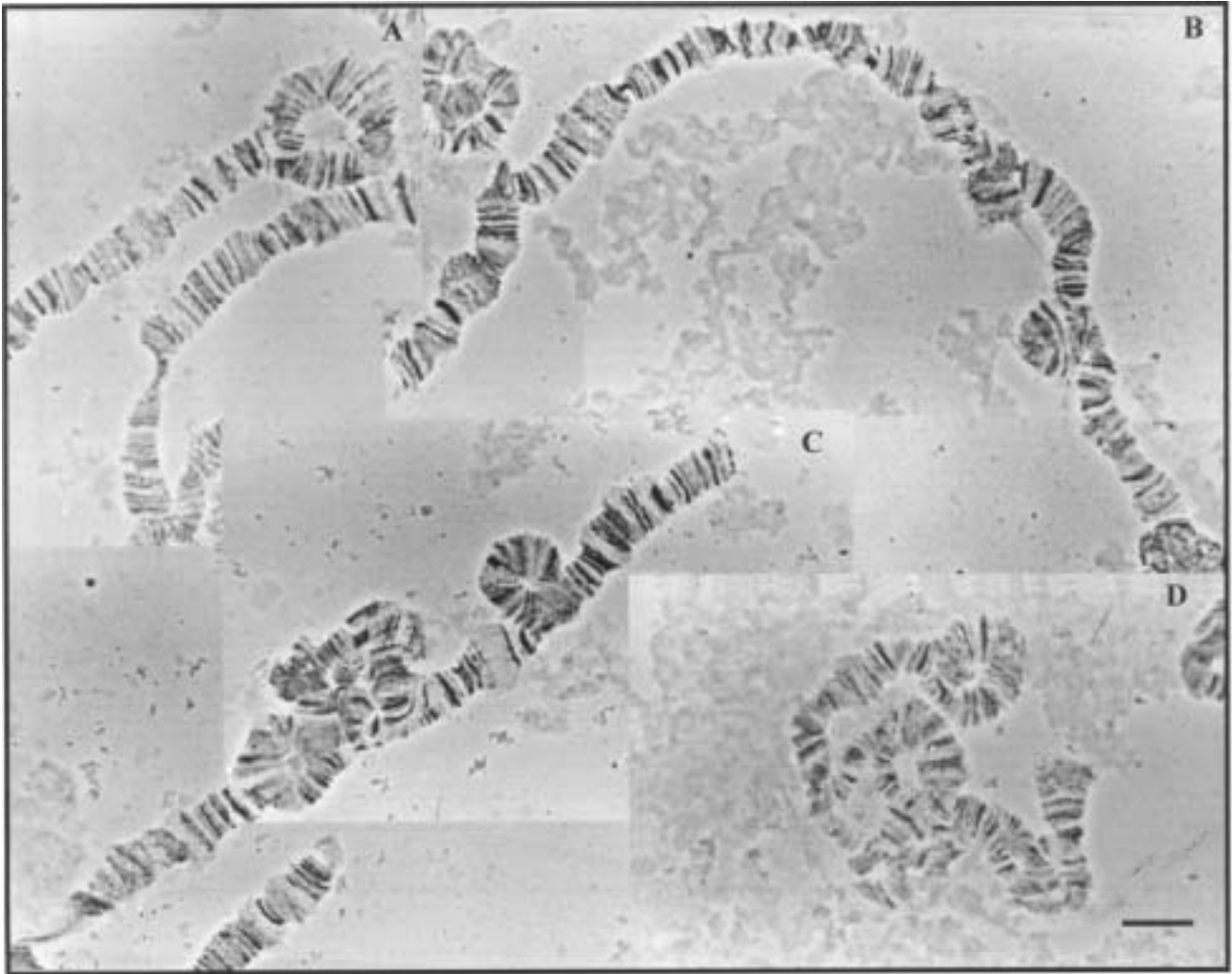


Figure 2. Heterozygous inversions of chromosome arm IIL of *D. willistoni* populations from Uruguay. (a) IIL H; (b) IIL I and IIL B; (c) IIL F and IIL D+E; (d) IIL H, IIL D+E and IIL A. Bar =10 μ m.

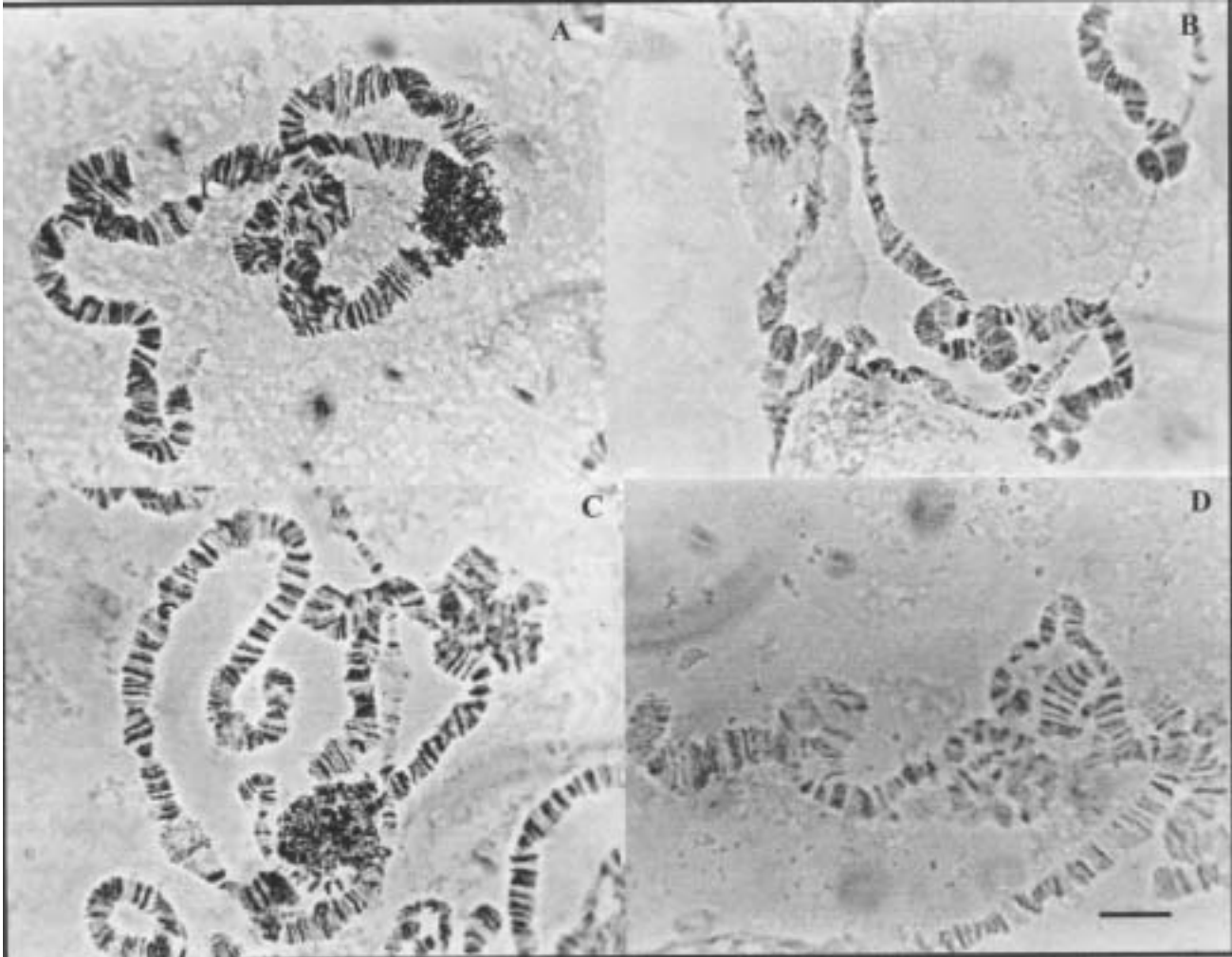


Figure 3. Heterozygous inversions of the chromosome arm IIR of *D. willistoni* populations from Uruguay. (a) IIR B; (b) IIR C; (c) IIR I; (d) IIR G. Bar = 10 μ m.

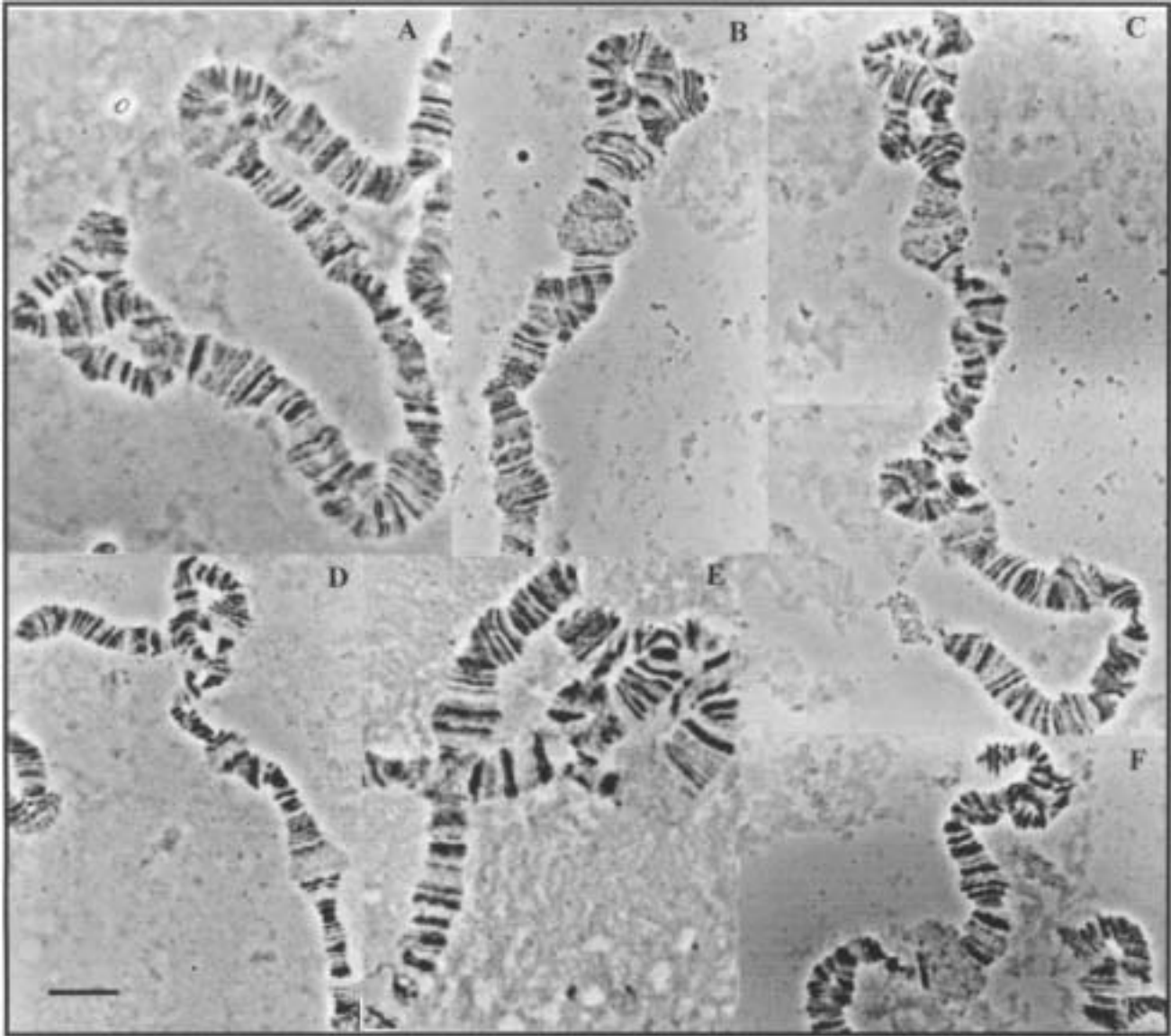


Figure 4. Heterozygous inversions of the chromosome III of *D. willistoni* populations from Uruguay. (a) III J and III B; (b) III J; (c) III J and III C; (d) III N; (e) III J+V1; (f) III M. Bar =10 μ m.

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