arrangements of natural origin and occurrence: A_{st}, A_1, A_2, A_{2+3}, A_{2+4}, A_{2+6}, A_{2+3+6}, A_{2+3+5}, $A_{2+3+5+7}$ (SR), A_{2+5+7}, A_{2+8}. The new inversion, A_9, was detected in the progeny of a male that had been crossed to females from a laboratory strain that carried the A_{st} chromosomal arrangement (Figure 1A and 1B). This male, which also carried the A_2 inversion, belonged to an isofemale line recently established from a natural population captured in Bizerte (Tunisia). Inversion A_9 was only present in this male from a total of forty-nine lines studied. Most probably A_9 is a recently arisen inversion as it was not detected by Jungen (1968) in his extensive survey of chromosomal inversion polymorphism (more than 550 sexual chromosome analyzed) in Tunisian populations of *D. subobscura.*

The breakpoints of the new inversion are located in sections 1B and 3B on the Kunze-Mühl and Müller map (1958), respectively. The 1B breakpoint of A_9 is very close, if not coincident, to the proximal breakpoints of inversions A_5 and A_7 which would support the nonrandom distribution of inversions along chromosomes. A_9 is the shortest inversion described in the A chromosome. Also, when we compare A_9 to the autosomal inversions of *D. subobscura,* only J_5, E_{14}, E_{20} and O_{24} are shorter.

In the process of obtaining a homokaryotypic line for A_9 from the progeny of the initial male (A_{st}/A_{9+2} females and A_{st}/Y males), both recombinant classes (A_2 and A_9) were found. This result indicates that, at least under laboratory conditions, crossover between the A_9 and A_2 inversions is not physically inhibited. As expected, the homokaryotypic females for the new inversion (A_9/A_9), as well as the hemizygote males, did not show any viability problems and grew satisfactorily at 18° and 13°C.

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References: Jungen, H., 1968, Archiv Julius Klaus-Stiftung Vererbungsforschung Socialanthropologie Rassenhygiene 43: 3-55; Krimbas, C.B., 1993, Drosophila subobscura. *Biology, Genetics and Inversion Polymorphism* pp. 107-139, edited by C.B. Krimbas. Verlag Dr Kovac, Hamburg; Krimbas, C.B., and J.R. Powell 1992, *Drosophila Inversion Polymorphism* pp.1- 20, edited by C.B. Krimbas and J.R. Powell. CRC Press, Boca Raton, Fl; Kunze-Mühl, E., and E. Müller 1958, Chromosoma 9: 559-570; Sperlich, D., and H. Feuerbach-Mravlag 1974, Evolution 28: 67-75.

Cerda, Hugo[1], and Antonio Fontdevila[2]. [1] Simón Rodriguez University Pest Control Laboratory, Apartado Postal (P.O. Box) 47.925, Caracas 1041-A, Venezuela; [2] Universitat Autonoma de Barcelona, Department de Genètica i de Microbiologia, Bellaterra, Spain. Evolutionary Divergence of *Drosophila venezolana* (*martensis* Cluster, *buzzatii* Complex) on Gran Roque Island, Venezuela.

Introduction

The *martensis* cluster (*buzzatii* complex, *repleta* group) comprise a group of four species which emerge from cacti endemic to northern South America (Ruiz and Wasserman, 1992). The species are *D. martensis* (Wasserman and Wilson, 1957), *D. starmeri* (Wassermann, Koepfer and Ward, 1973), *D. uniseta* (Wassermann, Koepfer and Ward, 1973), and *D. venezolana* (Wasserman, Fontdevila and Ruiz, 1983).

D. venezolana was the last species described. Throughout its distribution it has a 2 e^7 chromosomal pattern. This species is symmorphic, and phylogenetically closely related to *D. starmeri* (Cerda and Benado, 1986; Fontdevila and Ruiz, 1983; Ruiz and Fontdevila, 1981). This species has been reported in arid zones of Venezuela, mainly in Falcon State and some small arid coastal zones of Central and Eastern Venezuela, where it feeds on cacti of the *Opuntia* genus (Cerda, *et al.*, 1996; Benado, 1989). On Gran Roque island, the largest island of the Los Roques archipelago, 120 km north of the coast of Venezuela's Federal District, *D. venezolana* is the only species of the *martensis* cluster and breeds and feeds in all the cacti on the island, including *Stenocereus griseus*, *Opuntia wentiana*, and *Melocactus amoenus* (Benado, 1989).

This paper reports the results of a preliminary analysis of chromosomal polymorphism, abdominal band pattern, eye color, and reproductive isolation of *D. venezolana* of Gran Roque, in comparison with the continental populations of *D. venezolana.*

Material And Methods

Location of the Study: *Drosophila* individuals were collected in February 1984 using fermented banana and beer as bait, on Gran Roque island (11° 58' 33" N, 66° 40' 37" W).

Chromosomal Polymorphism and Reproductive Isolation: Polytene chromosomal polymorphism of 22 larvae reared in David medium (1959) was analyzed using acetic orceine staining.

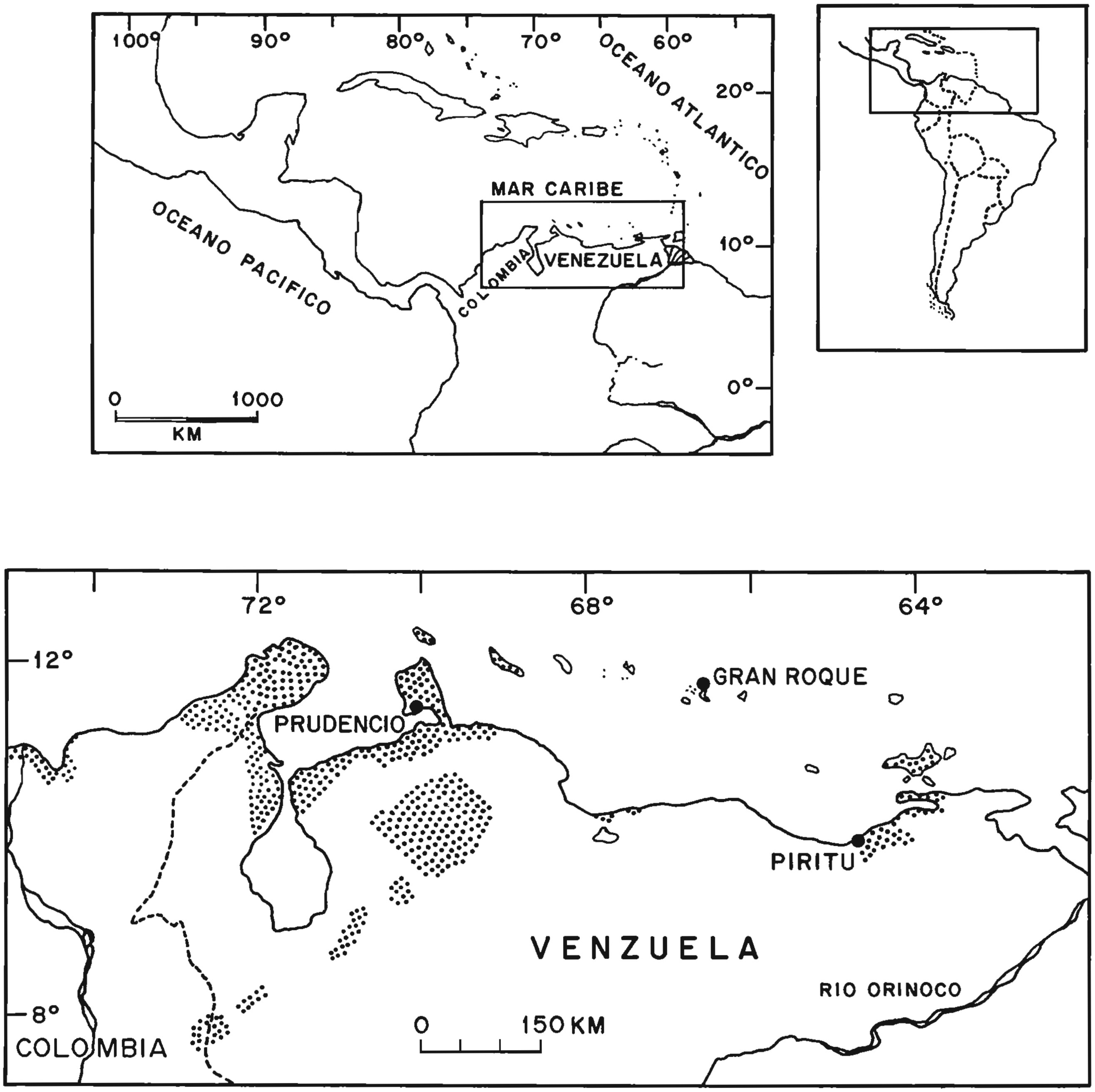

Figure 1. Geographic distribution of *Drosophila venezolana* in the Gran Roque Island, the west continental localities of Prudencio and the East Continental Locality of Píritu.

The study of reproductive isolation was performed through interpopulational crosses between the populations of Gran Roque, Prudencio (11° 39' N, 70° W, Falcón State in western Venezuela), and Píritu (10° 03' N, 65° 03' W, Anzoátegui State in eastern Venezuela) (Figure 1). Five replications were made for each cross of five mating pairs. The adults began to emerge after 15-20 days. Offspring number was counted and the emerged F1 individuals were kept in vials for subsequent crosses to give rise to the F2 generation. Intrapopulational crosses were used for control. The number of descendent was compared with intrapopulation control using Wilcoxon's non-parametric test (Sokal and Rohlf, 1981).

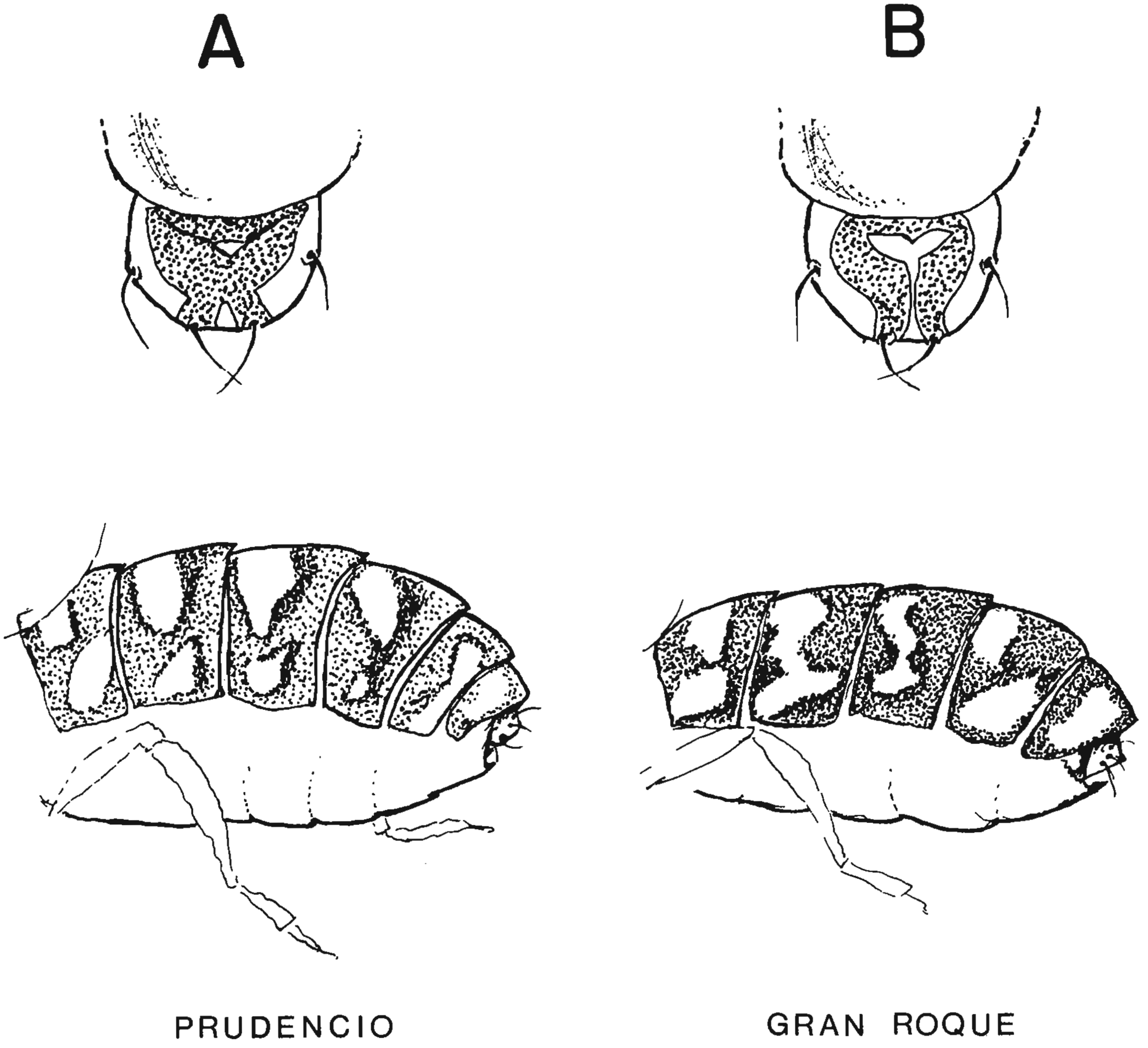

Figure 2. A. The morphological characters, the abdominal band pattern (bottom) and the escutelum (upper), from the locality of Prudencio and B the morphological characters, of the abdominal band pattern (bottom) of the escutelum (upper), from the locality of *D. venezolana* of Gran Roque.

Results And Discussion

The karyotype of the 44 genomes analysed showed the $2e^7$ rearrangement. Morphological characters, namely the abdominal and scutelum band patterns, differ from those of the continental populations (Figure 2). Eye color was opaque red in all the individuals studied, a color never observed before in continental populations.

D. venezolana from Gran Roque revealed reproductive isolation for F1 and F2 crosses with continental populations; the highest values were found for the F2 offspring from crosses with Prudencio (Table 1).

Gran Roque island occupies a small area of 1.7 km^2 and *D. venezolana* is the only cactophilic *Drosophila* species found there; it breeds in all the cacti present on the island. In this paper we give reasons to think that the Gran Roque population has undergone a genetic divergence process, as it is shown by its incipient reproductive isolation and by its morphological divergence. This may be explained by the island's geographic isolation or by a founder effect.

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Table 1. Offspring numbers of crosses (average of five replications ± standard deviation) for the first generation F$_1$ and the second generation F$_2$ among populations of the *D. venezolana* species from Piritu (Eastern Venezuela), Prudencio (Western Venezuela), and Gran Roque Island. M indicates males and F indicates females. Asterisk* indicates that the number of control descendents is statistically different from both together of the intrapopulational control group for a Wilcoxon nonparametric test at $p < 0.05$.

A) First generation of F$_1$ crosses among *D. venezolana* populations from Gran Roque island, Prudencio, and Píritu.

Breedings	M x F	F x M
Interpopulational crosses:		
Píritu x Gran Roque	219.0 ± 80.5	162.0 ± 86.7*
Prudencio x Gran Roque	162.6 ± 76.7*	138.6 ± 59.0*
Intrapopulational crosses:		
Grand Roque x Gran Roque	322.4 ± 50.8	
Prudencio x Prudencio	338.6 ± 59.0	
Píritu x Píritu	359.0 ± 23.8	

B) Second generation of F2 crosses among *D. venezolana* populations from Gran Roque island, Prudencio, and Píritu.

Breedings	M x F	F x M
Interpopulational crosses:		
Píritu x Gran Roque	82.2 ± 31.6*	85.2 ± 10.9*
Prudencio x Gran Roque	36.4 ± 16.6*	70.4 ± 32.6*
Intrapopulational crosses:		
Grand Roque x Gran Roque	301.8 ± 32.1	
Prudencio x Prudencio	320.0 ± 50.8	
Píritu x Píritu	342.0 ± 37.0	

Singh, B.N.,[1] and S. Lata[2]. [1]Department of Zoology, Banaras Hindu University, Varanasi 221 005, India. [2]Zoology Section, Mahila Maha Vidyalaya, Banaras Hindu University, Varanasi 221 005, India. Variation in the number of males and females without apical black patch on their wings in laboratory strains of *Drosophila biarmipes*.

Drosophila biarmipes males possess a dark apical black patch on their wings. There is variation in the male apical black wing patch and the males without the patch are also found (Singh and Chatterjee, 1987). Singh *et al.* (1995) reported for the first time the presence of apical black patch on the wings of females in two laboratory stocks of *D. biarmipes*. However, in females, the patch is lighter and does not touch the margin of wings. Behavioral studies have been carried out in *D. biarmipes* by Singh and his coworkers (Singh and Chatterjee, 1987; Singh and Pandey, 1993, 1994; Srivastava and Singh, 1996, 1997). Males with wing patch have greater mating success than those without wing patch which provides evidence for the role of visual stimuli in mating behavior of *D. biarmipes* (Singh and Chatterjee, 1987). Males without a patch lack the visual element of courtship display and they have to court the females for a longer time to stimulate the females beyond the acceptance threshold and achieve copulation (Chatterjee and Singh, 1991).

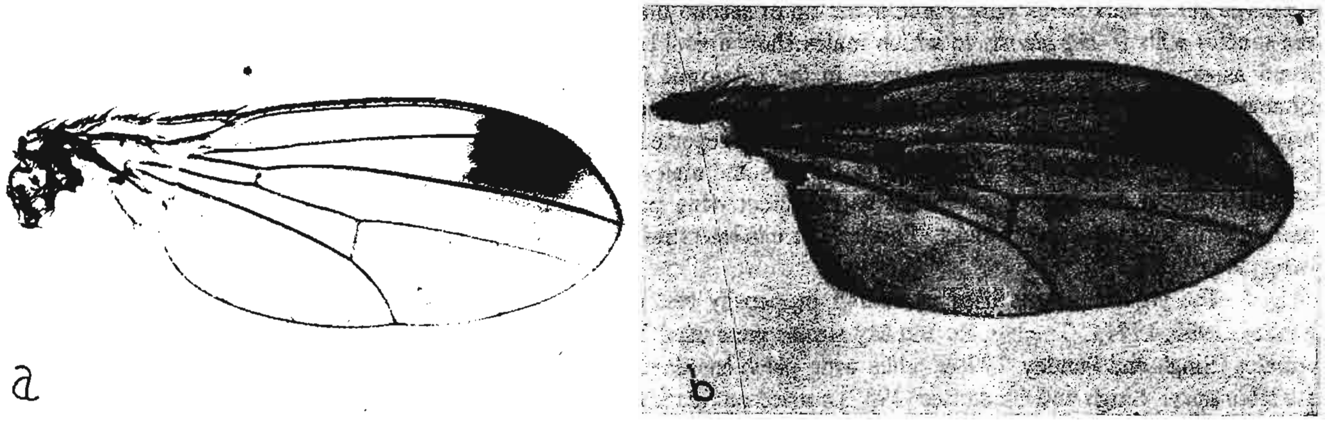

Figure 1. Wings of *D. biarmipes* showing apical black patch: a - male, b - female