

SHORT COMMUNICATION

KARYOTYPE OF *Oryzomys capito oniscus* (RODENTIA), FROM NORTHEASTERN BRAZIL

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ABSTRACT

The karyotype of *Oryzomys capito oniscus* is reported ($2n = 52$, FN = 62), along with data on G,C banding and Ag-staining of nucleolar organizer regions (NORs). These data contribute to the study of chromosomal relationships within the *capito* complex.

INTRODUCTION

Karyotypes of the *Oryzomys capito* complex have been described on the basis of their number and gross morphology. Gardner and Patton (1976) provided the first chromosomal description for animals of this complex as being $2n = 52$, FN = 62 in specimens collected in Peru. On the other hand, Barros (1978) found $2n = 54$, FN = 62 in specimens from the State of Pará, in the northern region of Brazil. The difference between these values is due to a Robertsonian event, involving two of the smallest chromosome pairs of the autosomal complement. Perez-Zapata *et al.* (1986) reported two distinct karyotypes in animals from Venezuela. Specimens from the northern region presented $2n = 34$, FN = 64 and those from the southern part of the country, $2n = 54$, FN = 62. They concluded that the first sample should be classified separately as *O. talamancae* and the $2n$ form of 54 should be considered as *O. capito*, whose karyotype was similar to the one from northern Brazil. A karyotype of $2n = 54$ was also reported by Baker *et al.* (1983) for animals collected in Suriname. Almeida (1980), however, described an extremely different karyotype ($2n = 80$, FN = 86) in specimens classified as *capito* and collected in the State of São Paulo, in the southeastern region of Brazil.

The present communication deals with cytogenetic data of *O. capito oniscus*, including findings concerning G, C bands and Ag-staining of NORs, not previously reported. These data are a contribution to the study of the chromosomal interrelationships within the *capito* complex.

MATERIAL AND METHODS

Two females and one male were trapped in São Lourenço da Mata (07°52'S; 35°06'W), state of Pernambuco, Brazil. Mitotic chromosomes were obtained from bone marrow cells following the techniques outlined by Ford and Hamerton (1956). Chromosomes were analysed after Giemsa staining, GTG and CBG banding (Seabright, 1971; Sumner, 1972). NORs were Ag-stained according to Howell and Black (1980). Skins and skulls of two specimens have been deposited in the Collection of the Departamento de Biologia Geral, UFPE, Brazil (PMN 346,429).

RESULTS

Chromosomal analysis of the three specimens showed a diploid number of 52 and FN = 62, whose autosomal complement is composed of 19 acrocentric pairs and 6 biarmed ones. Chromosome 1 is quite distinct from the other acrocentrics because of its size and the occurrence of a prominent short arm. The X chromosome, in all specimens, is an acrocentric sized approximately as pairs 3 and 4. Chromosome Y is a small acrocentric (Figure 1A). G banding patterns allowed the identification of all the homologues but it should be pointed out that the smallest elements could be only tentatively matched (Figure 1B). G bands were not obtained from the male specimen so that the X pair in the females was selected on the basis of its size plus the presence of the two bands characteristic of mammal X chromosomes (Pathak and Stock, 1974). C banding revealed a pericentromeric distribution of constitutive heterochromatin in all the autosomes and in the X. The Y is largely heterochromatic (Figure 2). Silver stained nucleolar organizer regions (Ag-NORs) were observed on the telomeres of the short arms of small acrocentrics and biarmed chromosomes. The number of Ag-NORs per metaphase varied from 4 to 6 (Figure 3).

DISCUSSION

The karyotype of *O. c. oniscus* from Northeastern Brazil with $2n = 52$, FN = 62 is similar to the one described by Gardner and Patton (1976) in specimens from Amazonian Peru. The samples of Barros (1978), Baker *et al.* (1983) and Perez-Zapata *et al.* (1986) all with $2n = 54$, FN = 62 apparently have the same complement and, if this is so, they would represent with our specimens, a single karyotypical entity, since the difference in diploid number is only related to a Robertsonian rearran-

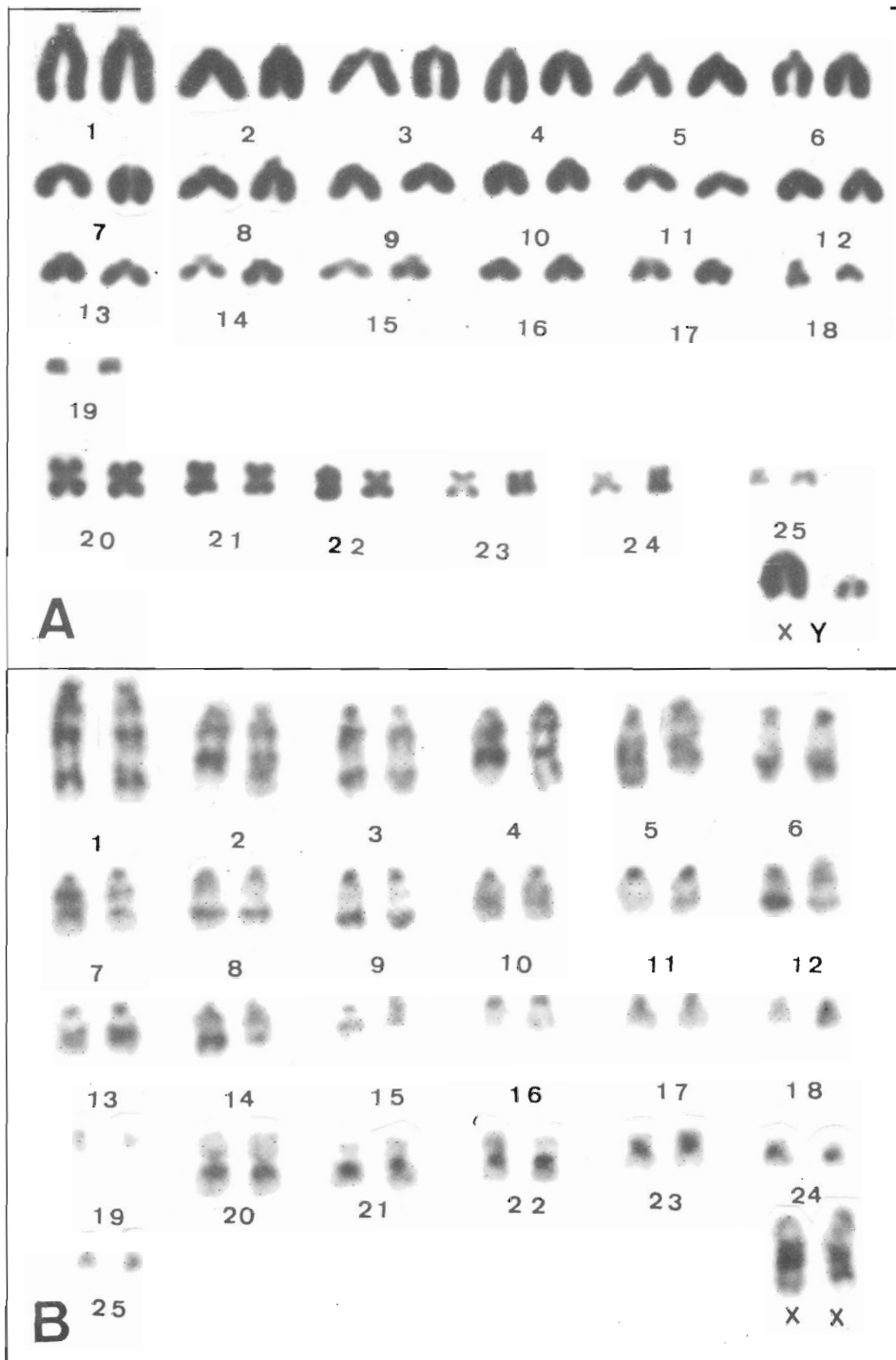


Figure 1 - A. Conventionally stained male karyotype of *Oryzomys capito oniscus* ($2n = 52$, FN = 62); B. G-banded female karyotype of *Oryzomys capito oniscus*.

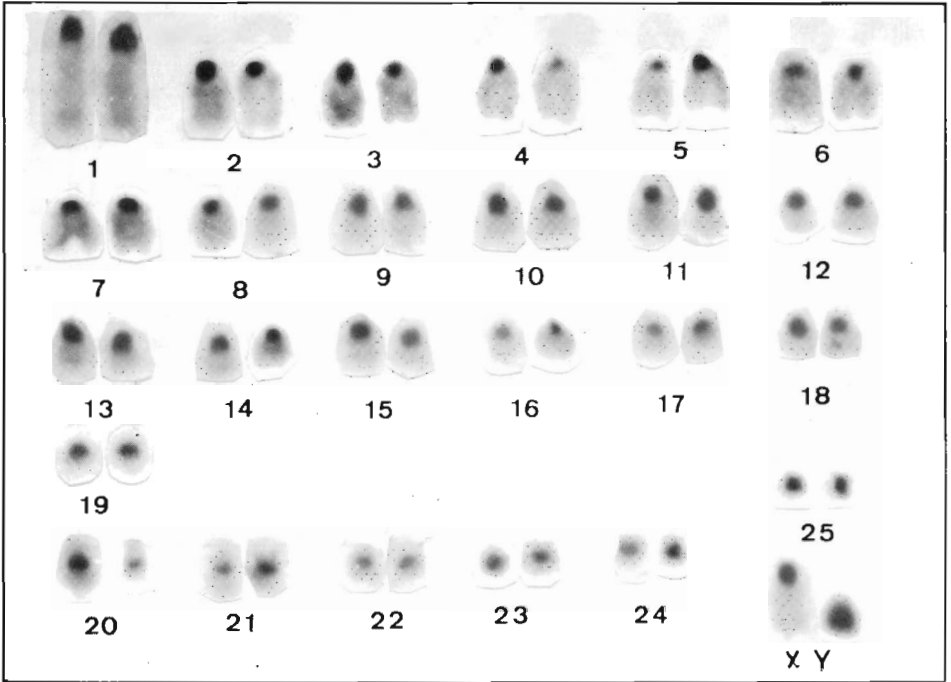


Figure 2 - C-banded male karyotype of *Oryzomys capito oniscus*.

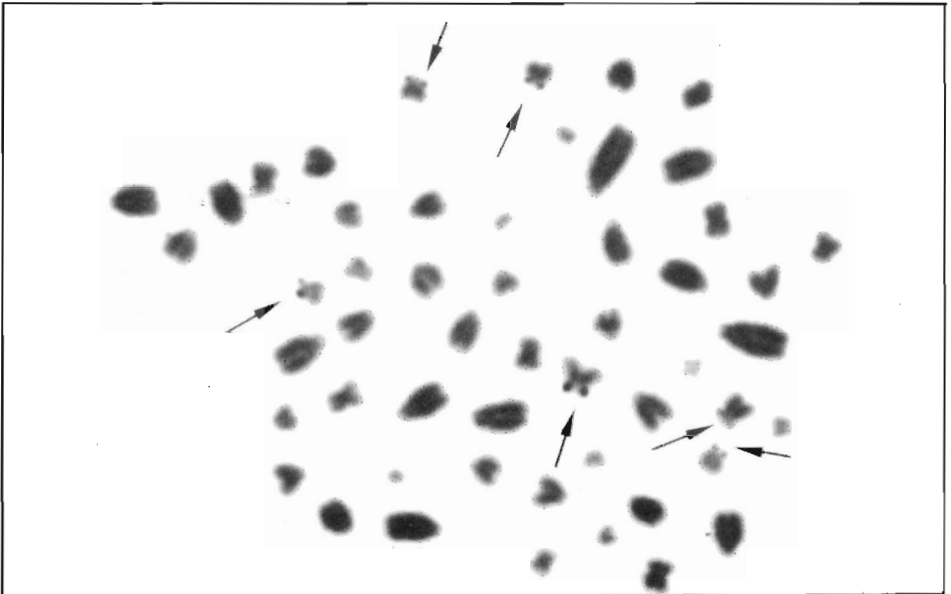


Figure 3 - NOR distribution in *Oryzomys capito oniscus*.

gement that led to this chromosomal variability. Robertsonian events, followed by pericentric inversions have been the major cause of a large number of polymorphisms in rodents (Yonenaga *et al.*, 1976; Maia and Hulak, 1981). Koop *et al.* (1983) working with ten specimens of rice rats, members of the *macconnelli-capito* complex, have found at least nine different centric fusion-fission polymorphisms, where no two individuals had the same karyotype. The specimens whose karyotypes we describe here have been classified as *O. capito oniscus* because they agree with the characters of *O. capito* mentioned by Musser and Williams (1985) and because they have been collected in the type locality of *O. c. oniscus* Thomas (1904), one of the 14 subspecies of *O. capito* recognized by Cabrera (1961), in northeastern Brazil. The *O. capito* complex has been controversial with respect to the taxonomic status of its members. Hershkovitz (1960; 1966) includes in this complex 18 closely related forms amongst which are *oniscus* and *macconnelli*. Cabrera (1961) classified *macconnelli* as a distinct species from *capito*. Gardner and Patton (1976) considered the hypothesis of the *O. capito* complex being formed by at least four species: *O. capito* with $2n = 52$, including besides *oniscus* ten other forms; *O. nitidus* with $2n = 80$; *O. macconnelli* with $2n = 64$ and *O. yunganus* with $2n = 58-60$. These authors have also stated that one other species could belong to this complex: *O. bombycinus* with $2n = 58$. The specimens studied by Almeida (1980) and classified as *O. capito* ($2n = 80$, FN = 86) show a karyotype very similar to the one of *O. nitidus* (Gardner and Patton, 1976) from Peru. These species show, among general aspects, many similarities to each other, a fact that may cause misclassification, so that, it is probable that Almeida (1980) has really studied specimens of *O. nitidus*. To distinguish these taxa one can consider the differences related to dorsum and tail color; alisphenoid strut; sphenofrontal foramen; squamosoalisphenoid groove and enamel island in the second upper molars (Musser and Williams, 1985).

Taking into consideration all the chromosomal data so far reported for this complex, $2n = 52, 54$, FN = 62 must be supported as characteristic of *O. capito*. A concluding solution to this problem depends, however, on the karyological analysis of specimens from Paraguay, the type locality of *O. capito*.

ACKNOWLEDGMENTS

Thanks are due to A. Laugguth for the literature supplies.

Financial support came from CNPq and FINEP.

RESUMO

O cariótipo da espécie *Oryzomys capito oniscus* é descrito ($2n = 52$, FN = 62), incluindo os dados referentes aos padrões de bandas G e C e as regiões organizadoras do nucléolo, marcadas pela prata. Estes dados contribuem para o estudo das relações cromossômicas dentro do complexo *capito*.

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