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The karyotype of *Oxymycterus* sp (Cricetidae, Rodentia) from Central Brazil[1]

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Abstract. Cytogenetical data, including G-, C-bands and NORs distribution of *Oxymycterus* sp (2n = 54; FN = 64) captured in Distrito Federal, state of Goiás, Central Brazil are presented. Our results are compared to the karyotype information already available on this genus.
Key words. Oxymycterus; Cricetidae; karyotype; Brazil.

In Brazil, specimens of several species of the rodent *Oxymycterus* have been analyzed cytogenetically: *O. angularis* from the state of Pernambuco[2], *O. cf rufus* from the state of Rio Grande do Sul[3,4,5], *O. iheringi* from Rio Grande de Sul[5], and *O. rutilans* from the state of Santa Catarina[6]. Besides these species, *Oxymycterus* sp from the states of São Paulo, Paraná and Rio Grande do Sul were also karyotyped[7–10]. Except for *O. iheringi* (2n = 52; FN = 50), all the specimens studied had 54 chromosomes, and the fundamental number was 64. Specimens of *O. rutilans platensis* from Argentina also presented 2n = 54 and FN = 64[11].

Autosomal variability due to chromosomal duplication/deletion was found in *Oxymycterus* sp from São Paulo[7,8], and due to a pericentric inversion in *O. cf rufus* from Rio Grande do Sul[5] and *O.* sp from the same state[9].

Although many Brazilian authors have made cytogenetic studies of the genus *Oxymycterus*, the accessible literature is restricted to the work of Yonenaga[8], in which only the conventionally stained karyotype is shown. In this work, we present data including G- and C-banding and Nucleolus Organizer Regions (NORs) analysis, for *Oxymycterus* sp from the state of Goiás.

Material and methods

Six specimens (five males and one female) of *Oxymycterus* sp captured in the Parque Nacional de Brasília (15°43′S; 47°56′W) and in the Reserva Biológica de Aguas Emendadas (15°33′S; 47°35′W), Federal District, state of Goiás, central Brazil, were analyzed cytogenetically. The specimens were taxonomically identified by Dr. Philip Hershkovitz (Field Museum of Natural History, Chicago) and by the group of Prof. Jader Marinho Filho (Universidade de Brasília). The skins and skulls of five specimens were deposited in the first institution (under the field numbers: PH 9620, PH 9619, PH 9599, PH 9639 and PH 9640).

Bone marrow and cell cultures obtained from tail biopsy were used for chromosomal preparations[12]. G- and C-banding were performed according to Seabright[13] and Sumner[14], respectively. NORs were demonstrated following the method of Howell and Black[15].

Results and discussion

All the animals studied displayed a karyotype with 2n = 54 and FN = 64, composed of: 1 large subtelocentric autosomal pair (pair 1), 5 metacentric autosomal pairs with sizes from medium to small (pairs 2 to 6), 20 acrocentric pairs varying in size from large to small (pairs 7 to 26), a large submetacentric X and a small submetacentric Y. Most cells of the female presented a heteromorphic sexual pair (fig. 1).

G-banding patterns (fig. 2) allowed the identification of all chromosomal pairs. The X chromosome had four bands in the long arm, besides a median band in the short arm. The Y presented two bands in the long arm, while its short arm was uniformly stained.

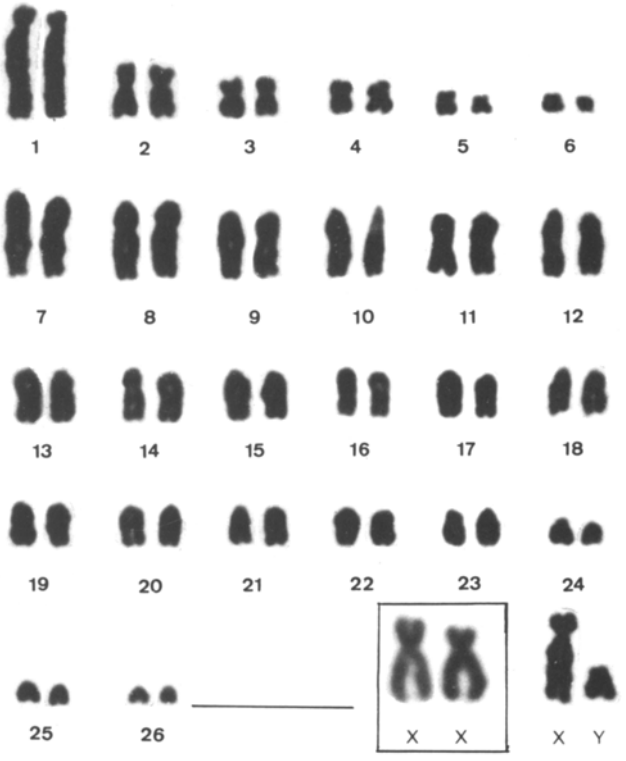

Figure 1. Karyotype of a male *Oxymycterus* sp (2n = 54; FN = 64). In the inset, the sexual pair of the female. The bar indicates 10 μm.

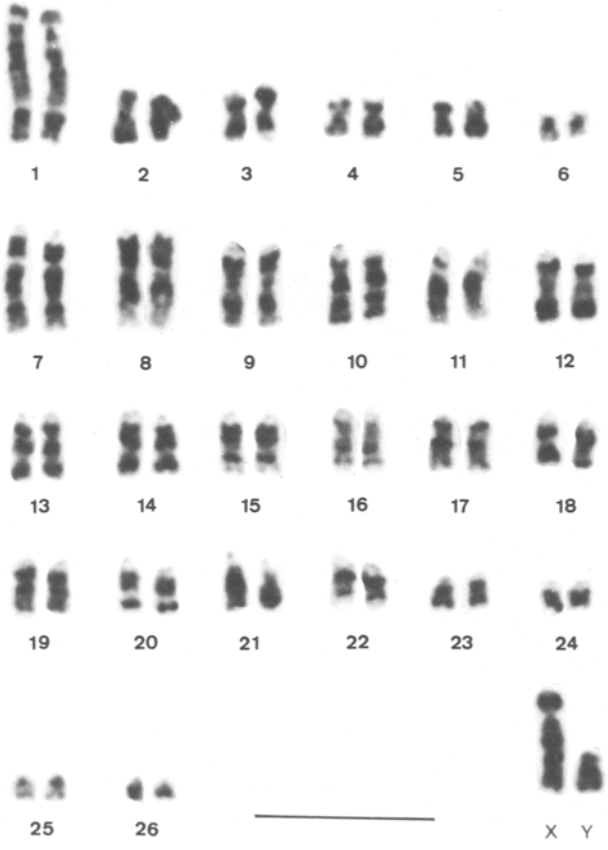

Figure 2. G-banded karyotype of a male *Oxymycterus* sp (2n = 54; FN = 64). The bar indicates 10 μm.

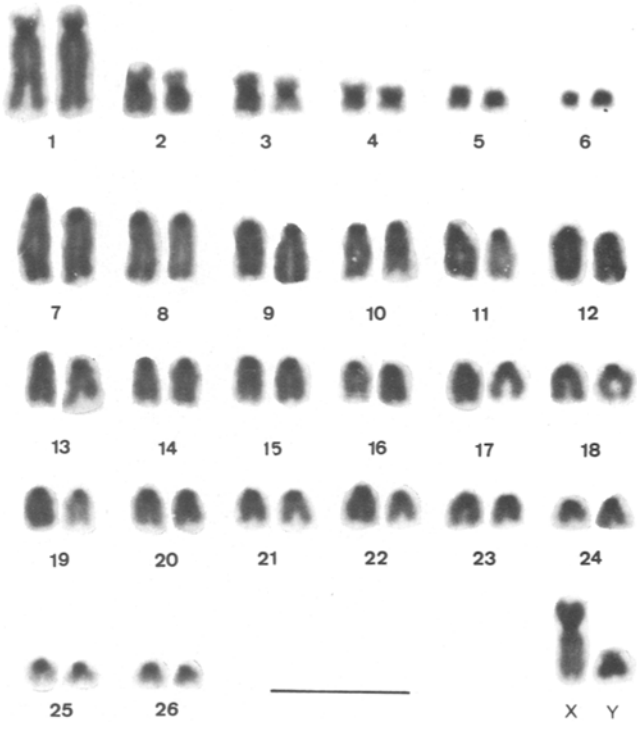

Figure 3. C-banded karyotype of a male *Oxymycterus* sp (2n = 54; FN = 64). The bar indicates 10 μm.

C-banding patterns (fig. 3) revealed pericentromeric heterochromatin in all autosomes and in the X chromosome, in which the whole of the short arm was completely stained. In the Y chromosome the whole of the long arm was strongly stained.

The NORs, analyzed in 68 cells of two male specimens, always occurred in the short arms of acrocentric autosomes. The minimum number of chromosomes bearing NORs per cell was five and the maximum, 13. The modal number of NORs was different in the two specimens. Most cells presented eight NORs (cf. table, fig. 4).

Our data were compared with those already reported in the literature for *Oxymycterus* specimens collected in other geographical regions (except for Bueno's work on *O. rutilans*[6], which only gives data on 2n and FN). The autosomal pairs of individuals from all the regions studied were similar.

The X chromosome was a large submetacentric in the majority of the *Oxymycterus* specimens studied, a large subtelocentric in *O. cf rufus*[5] and in some *O.* sp reported by Sbalqueiro et al.[9], and a large submetacentric heteromorphic pair only in the female described in the present study. This heteromorphism may be due to constitutive heterochromatin addition/deletion and/or differential condensation, as measurements have shown that both arms of each X chromosome could vary in relative size in different metaphases, and heterochromatic regions are known to be subject to different degrees of condensation.

The Y chromosome was acrocentric in most *Oxymycterus* specimens examined, metacentric in one male *O.* sp[10] and submetacentric in our sample. As the sizes of the different morphological types of Y were equivalent, pericentric inversions could account for the observed variability.

The distribution of NORs showed a maximum of 13 chromosomes bearing NORs, which suggests that at least seven chromosomal pairs could be involved in nucleolus formation in *Oxymycterus*.

Most genera of Cricetidae rodents studied in Brazil present an extensive karyotypical variability. In contrast, the cytogenetic analyses performed in *Oxymycterus* up to now have demonstrated a relative karyotypical constancy. The identification of the specimens analyzed at the species level would be very useful to confirm the karyotypical stability observed. Unfortunately, the taxonomy of these rodents is especially difficult, and

Table. Nucleolus Organizer Regions (NORs) in *Oxymycterus* sp (2n = 54; FN = 64)

Specimen	Sex	Number of NORs per Cell									Number of cells
		5	6	7	8	9	10	11	12	13	
Bio 441	M	2	3	5	13	5	1	3	1	3	37
Bio 512	M	-	1	3	7	2	10	-	7	1	31

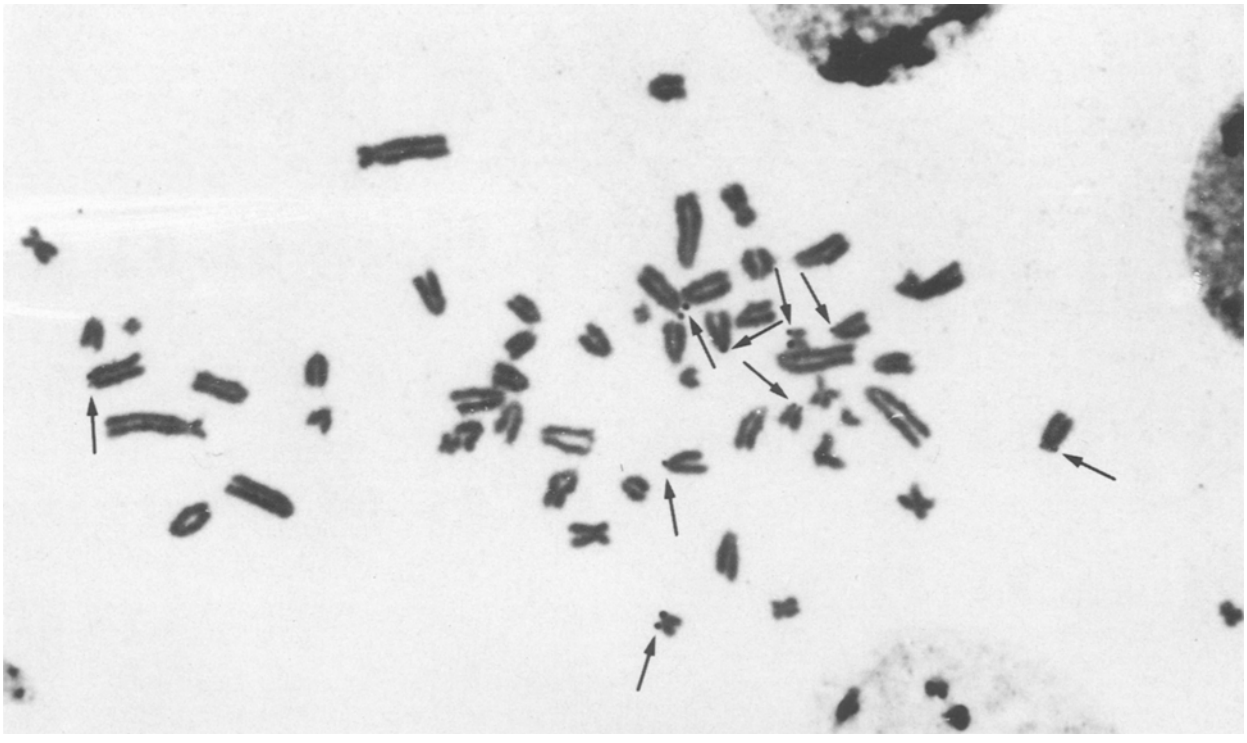

Figure 4. NORs in a metaphase of a male *Oxymycterus* sp (2n = 54; FN = 64). The arrows indicate nine NORs.

can only be performed by a few specialists, who are not always in touch with the groups working on cytogenetics.

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