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CHROMOSOMES OF *GALEMYS PYRENAICUS* (E. GEOFFROY, 1811) FROM PORTUGAL

M. G. RAMALHINHO *

INTRODUCTION

The Pyrenean desman *Galemys pyrenaicus* is endemic to French and Spanish Pyrenees and mountains of north Iberian Peninsula (RAMALHINHO, 1989), where it occurs along the fast flowing mountain streams. The distribution of this desman in Portugal is found in the north and centre.

The karyotype of *Galemys pyrenaicus* was first described by PEYRE (1957), who determined $2n = 42$, FN = 65-67. MEYLAN (1968) mentioned a fundamental number around to 66 (included in the fundamental number already determined by Peyre).

The aim of the present paper is to describe the chromosomes of *Galemys pyrenaicus* from Portugal.

* Museu e Laboratório Zoológico e Antropológico (Museu Bocage) Rua da Escola Politécnica, 58 — 1200 Lisboa.

MATERIAL AND METHODS

Two males of *Galemys pyrenaicus* from two localities: Parque Natural de Montezinho (altitude 1245 m) and Castrelos (altitude 620 m) were live-trapped for chromosomal analysis.

The specimens are deposited in the Museu Bocage (National Museum of Natural History of Lisboa).

All somatic metaphase chromosomal preparations for karyological examination were obtained from field-prepared slides by direct treatment of the bone marrow cells of the femur (a modified method of BAKER *et al* 1970).

Selected metaphases were used for karyogram construction (fig. 1).

RESULTS AND DISCUSSION

The two specimens of *Galemys pyrenaicus* examined had a diploid number of 42 (fig. 1). The autosomes comprise 6 pairs of metacentrics ranging in the karyogram according to the decreasing size; 5 pairs of submetacentrics also arranged according to the decreasing length; 3 pairs of subtelocentrics (two big and a little one) and a graded series of 6 pairs of acrocentrics. The sex chromosomes are composed by a big submetacentric X and a minute Y appearing to be acrocentric.

The chromosomes were arranged in the karyogram according to the centromeric position and their morphological identification were determined by the centromeric index and arm ratio under the nomenclature of LEVAN, FREDGA & SANDBERG (1964).

MALYGIN & ZASLAVSKY (1986) who had determined for the first time the karyotype of *Desmana moschata* (LINNAEUS, 1758) with a diploid chromosome set (2n) of 32 biarmed chromosomes and a autosomal complement comprising 6 pairs of metacentric, 8 pairs of submetacentric and 1 pair of subtelocentric chromosomes had compared the karyotypes of both species as well as them with other species of the family Talpidae. From this comparison these authors had considered the Pyrenean desman karyotype the most archaic once «It has long been proposed that karyotype evolution in mammals proceeded in the sense of a reduction of the total number of chromosomes, mainly by Robertsonian fusion.» KOULISCHER (1973).

An interesting particularity observed in the karyotype of *Galemys pyrenaicus* is the presence of a pair of metacentric chromosomes easily recognized by a distinct paracentromeric gaps, revealed by lack of staining, in the shorter

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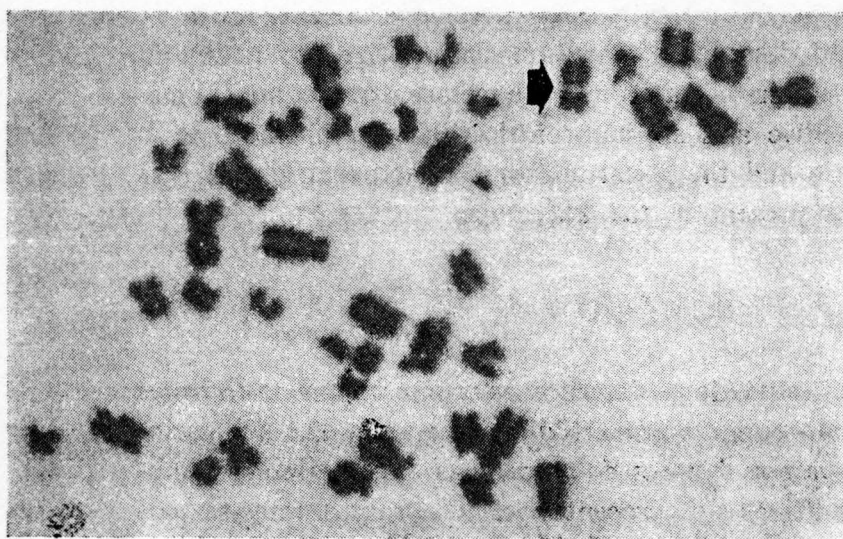
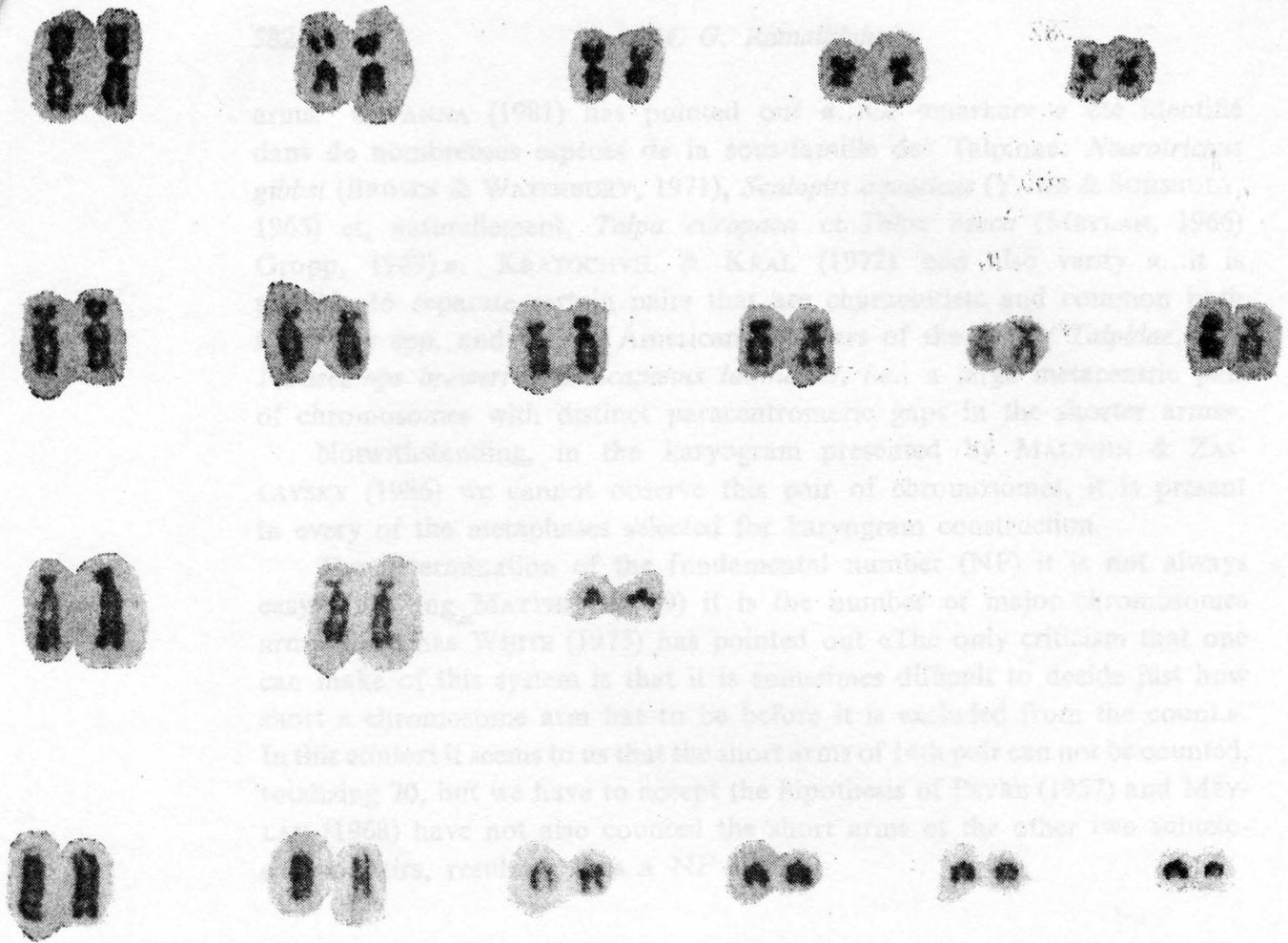


FIG. 1 — Karyotype of a male *Galemys pyrenaicus* from Portugal. $\times 2,000$.

arms. CAPANNA (1981) has pointed out «...Ce «marker» a été identifié dans de nombreuses espèces de la sous-famille des Talpinae: *Neurotrichus gibbsi* (BROWN & WATERBURY, 1971), *Scalopus aquaticus* (YATES & SCHMIDLY, 1965) et, naturellement, *Talpa europaea* et *Talpa caeca* (MEYLAN, 1966) Gropp, 1969).». KRATOCHVIL & KRAL (1972) had also verify «...it is possible to separate certain pairs that are characteristic and common both for *Talpa* spp. and certain American members of the family *Talpidae*, viz., *Parascalops breweri* and *Scapanus latimanus*, i.e., a large metacentric pair of chromosomes with distinct paracentromeric gaps in the shorter arms».

Notwithstanding, in the karyogram presented by MALYGIN & ZASLAVSKY (1986) we cannot observe this pair of chromosomes, it is present in every of the metaphases selected for karyogram construction.

The determination of the fundamental number (NF) it is not always easy, following MATTHEY (1959) it is the number of major chromosomes arms. But has WHITE (1973) has pointed out «The only criticism that one can make of this system is that it is sometimes difficult to decide just how short a chromosome arm has to be before it is excluded from the count.». In this context it seems to us that the short arms of 14th pair can not be counted, totalizing 70, but we have to accept the hypothesis of PEYRE (1957) and MEYLAN (1968) have not also counted the short arms of the other two subtelocentric pairs, resulting thus a $NF = 66$.

SUMMARY

Chromosomes of *Galemys pyrenaicus* ($2N = 42$) collected in north of Portugal were studied and described. They are characterized by a diploid number of $2n = 42$. Five pairs of autosomes are metacentric, six are submetacentric, three subtelocentric and six acrocentric. The X-chromosome is a big sized submetacentric and the Y-chromosome is acrocentric and it is the smallest chromosome present in the karyotype.

SUMÁRIO

Neste trabalho foram estudados e descritos os cromossomas de *Galemys pyrenaicus* do norte do país, com um número diploide igual a 42. No cariógrama apresentado observam-se 5 pares de autosomas metacéntricos, 6 submetacéntricos 3 subtelocéntricos e 6 acrocéntricos. Os cromossomas sexuais apresentam-se como um grande submetacéntrico o X e como um pequeníssimo acrocéntrico o Y.

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Conselho de Redacção:

Prof. Dr. CARLOS ALMAÇA
Dr.ª ANA MARIA NEVES

Editor:

MUSEU BOCAGE
R. Escola Politécnica, 58
1200 LISBOA