Systematic problems in the frog species *Eupsophus roseus* (Anura: Leptodactylidae) detected by karyological analysis[1]

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Summary. 3 different karyotypes are described in the Chilean frog, *Eupsophus roseus*, which could be an unnatural assemblage of species. The 3 karyological forms are considered as full species.

Eupsophus roseus D & B 1841[3] is an endemic frog of the cool and humid forests of Southern Chile[4]. This species exhibits populational polymorphism in many morphological features[5] (colour, dorsal and ventral patterns and some somatometric ratios) and it is possible, for this reason, that at least 4 taxa of specific level were described in the past[6–8]. In spite of the remarkable morphological variations, polymorphism and synonymy of this species have not been analyzed completely. The populational variation led me to the idea that at least 3 taxa are involved in *Eupsophus roseus* name. Although I could not prove the specific level of these forms from the morphological point of view, I suppose that they are full species. In recent years, karyological data have been an important tool in systematic studies[9]. Karyological criteria are used here in order to resolve the taxonomic problems of *E. roseus*.

Material. The frogs used in this study included: 12 males and 6 females of *E. roseus* from Valdivia city, 23 males and 4 females from Mehuín (27 km from San José de la Mariquina) and 12 males and 11 females from Fundo San Martín (15 km from San José de la Mariquina). All specimens were deposited in the Amphibian collection of Instituto de Zoología, Universidad Austral de Chile, Valdivia (IZUA). Methodology and nomenclature are used as described in previous paper[10].

As a result of this chromosomal study, 3 different karyotypes were found, which are designed as A, B, and C.

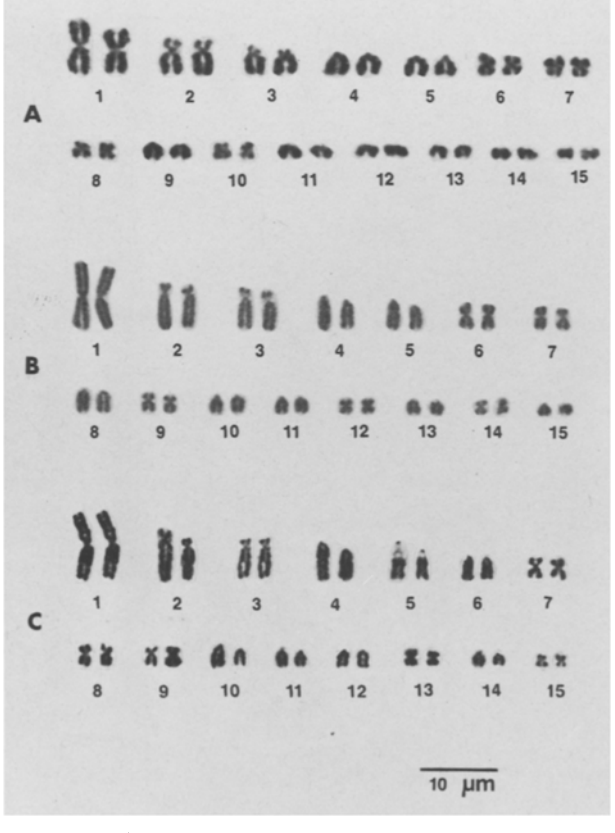
Karyotype A. The chromosomic set of this form consists of 30 chromosomes, 7 pairs biarmed and 8 pairs monoarmed. The fundamental number is 44. Pairs 1,6,7,8 and 10 are metacentric, pair 2 is submetacentric and pair 3 is subtelocentric. Pairs 11,12,13,14 and 15 are acrocentric. Pair 2 has a subterminal secondary constriction in the smaller arm.

Karyotype B. The chromosomic set of this form consists of 30 chromosomes, 8 pairs biarmed and 7 pairs monoarmed. The fundamental number is 46. Pairs 1,6,7,8,11 and 14 are metacentric, pair 2 is submetacentric and pair 3 subtelocentric. Pairs 4,5,8,10,11,13 and 15 are acrocentric. Pair 3 has a secondary constriction in the smaller arm.

Karyotype C. The chromosomic set of this form has 30 chromosomes, 8 pairs biarmed and 9 pairs monoarmed. The fundamental number is 46. Pairs 1,7,8,9,13 and 15 are metacentric, pairs 2 and 3 are subtelocentric and pairs 4,5,6,10,11,12 and 14 are acrocentric. A remarkable secondary constriction was found in pair 5.

As amphibian species have a characteristic karyotype, as has been demonstrated in many frogs and toads[11], the karyotypes found in *E. roseus* could be considered to be of 3 different full species. On the other hand, each karyological form is related with minute external morphological characters clearly visible on the live frogs. For example, the animals with A karyological form have a dark belly with white irregular spots, and the upper part of the iris is bronze-yellow. The frogs karyotyped B and C have the upper part of the iris orange; however B is brown on the back and C is redish.

The high degree of variability observed in this frog could be an apparent phenomenon if *E. roseus* is considered an unnatural assemblage of species which can be easily identified on basis of chromosomal grounds.



Karyotypes detected in the Chilean frog *Eupsophus roseus*. *A* Mehuín, *B* Valdivia, *C* San Martín.

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