

Karyotypic evolution trends in *Rhamdia quelen* (Siluriformes, Heptapteridae) with considerations about the origin and differentiation of its supernumerary chromosomes

C. Garcia¹, C. Oliveira² and L.F. Almeida-Toledo¹

¹Departamento de Genética e Biologia Evolutiva,
Universidade de São Paulo, São Paulo, SP, Brasil

²Departamento de Morfologia,
Universidade Estadual Paulista Júlio de Mesquita Filho, Botucatu, SP, Brasil

Corresponding author: C. Garcia
E-mail: carol99bio@yahoo.com

Genet. Mol. Res. 9 (1): 365-384 (2010)

Received November 24, 2009

Accepted December 14, 2009

Published March 2, 2010

ABSTRACT. Among catfish species of the genus *Rhamdia* reported for the Brazilian territory, *R. quelen* is the most widespread, being found in nearly all hydrographic basins of Brazil. Nowadays, *R. quelen* is a synonym for at least 47 other species in this genus, its taxonomic status still being controversial. The available cytogenetic reports show a wide variation in the karyotypic macrostructure, with the frequent presence of supernumerary chromosomes. The remarkable cytogenetic variability associated with taxonomic issues in this species indicates that *R. quelen* is actually a species complex.

In order to carry out a wide comparative cytogenetic study in *R. quelen* from southern and southeastern Brazil and examine a species complex, we analyzed the chromosomes of 14 populations from the main hydrographic basins of these two regions. Using classic and molecular cytogenetic techniques, we found seven distinct karyotypic formulae, all bearing $2n = 58$ chromosomes. Supernumerary chromosomes were present in most of the populations; their number, size and C-banding pattern allowed us to differentiate populations with similar karyotypic compositions. We examined patterns of chromosomal evolution as well as the probable mechanisms involved in the origin and morphological differentiation of their supernumerary chromosomes.

Key words: Karyotype; Supernumerary chromosomes; *Rhamdia*; Heterochromatin; Non-disjunction