Online journal ISSN - 1676-5680
GMR Genetics and Molecular Research
EVOLUTION AND TECHNOLOGY

Cytogenetic and random amplified polymorphic DNA analysis of *Leptodactylus* species from rural and urban environments (Anura, Amphibia)

M.P. Arruda and E. Morielle-Versute

Departamento de Zoologia e Botânica, Instituto de Biociências, Letras e Ciências Exatas, UNESP, São José do Rio Preto, SP, Brasil

Corresponding author: E. Morielle-Versute
E-mail: morielle@ibilce.unesp.br

Genet. Mol. Res. 7 (1): 161-176 (2008)
Received November 15, 2007
Accepted December 27, 2007
Published February 19, 2008

ABSTRACT. Cytogenetic and random amplified polymorphic DNA analyses carried out in the species *Leptodactylus podicipinus*, *L. ocellatus*, *L. labyrinthicus*, and *L. fuscus* from rural and urban habitats of the northwest region of São Paulo State, Brazil, showed that the karyotypes (2n = 22), constitutive heterochromatin distribution and nucleolus organizer region (NOR) location did not differ between the populations from the two environments. The *in situ* hybridization with an rDNA probe confirmed the location of the NORs on chromosome 8 revealing an *in tandem* duplication of that region in one of the chromosomes of *L. fuscus*. DAPI showed that part of the C-band-positive heterochromatin is rich in AT, including that in the proximity the NORs in *L. podicipinus* and *L. ocellatus*. The molecular analyses showed that the two populations (urban and rural) of *L. podicipinus* and *L. fuscus* are similar from a genetic point of view. The urban and rural populations of species *L. ocellatus* and *L. labyrinthicus* showed differences in genetic structures, probably due to urbanization which interferes with the dispersion of those frogs. The marked differences observed between the two populations of *L. ocellatus* can be representing the cryptic condition of the species. Unweighted pair-group method of analysis and genetic distance analysis detected the genetic proximity between *L. ocellatus* and *L. fuscus*.

The results indicate that there was no reduction in the genetic diversity in the populations from the urban environment; however, the survival of these frogs would not be guaranteed in the case of an increase in human impact especially for populations of *L. labyrinthicus* and *L. ocellatus*.

Key words: Cytogenetic; Amphibia; Leptodactylidae; Anthropogenic; Genetic diversity; Random amplified polymorphic DNA

