

# The Karyotype of *Scoloplax distolothrix* (Teleostei: Siluriformes: Scoloplacidae)

Claudio Oliveira\*, Anderson Luís Alves and Fausto Foresti

Departamento de Morfologia, Instituto de Biociências, Universidade Estadual Paulista,  
18618–000 Botucatu, São Paulo, Brazil

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**Summary** The karyotype of a fish species belonging to the family Scoloplacidae, *Scoloplax distolothrix*, is described for the first time. Cytogenetic studies showed that this species has  $2n=50$  chromosomes, 18 metacentrics, 18 submetacentrics, 10 subtelocentrics and 4 acrocentrics. The Ag-NORs are restricted to a single large metacentric pair in the interstitial position on the long arm.

**Key words** Fish cytogenetics, Karyotypes, Ag-NORs, Chromosome evolution.

The family Scoloplacidae, with only 4 species, is the most recent family of Siluriformes to be discovered (Schaefer 2003). Bailey and Baskin (1976) described the first species of scoloplacid and suggested that it could belong to a new subfamily of Loricariidae. Only in 1980 Isbrücker elevated the subfamily to family status, and Howes (1983) confirmed that action *via* a cladistic analysis of higher loricarioid relationships. Scoloplacids are known from the Amazon, Tocantins, and Parana/Paraguay river systems of South America (Schaefer 2003). Fishes of this family are usually referred as miniature catfishes, since the adults do not exceed the standard length in about 20 mm (Schafer 2003). Phylogenetic studies (reviewed in de Pinna 1998) showed that Scoloplacidae belongs to the superfamily Loricarioidea and is the sister group of the clade composed by Loricariidae and Astroblepidae (Fig. 1). The main objective of the present study was to describe for the first time, the karyotypic of a scoloplacid species.

## Materials and methods

Five females, 2 males, and 1 specimen not sexed of *Scoloplax distolothrix* from a marginal lagoon of the Itiquira River, Itiquira, Mato Grosso, Brazil (S 17°28'13" W 055°14'46.7") were karyotyped. Vouchers were deposited in the collection of the Laboratório de Biologia e Genética de Peixes (LBP 1424), Departamento de Morfologia, UNESP. Mitotic chromosome preparations were obtained from kidney and gill tissues using the air-drying technique (Foresti *et al.* 1993). Chromosome morphology was determined on the basis of arm ratio as proposed by Levan *et al.* (1964), and chromosomes were classified as metacentrics (M), submetacentrics (SM), subtelocentrics (ST) and acrocentrics (A). Silver staining of nucleolar organizer regions (Ag-NORs) followed the technique proposed by Howell and Black (1980).

## Results and discussion

*Scoloplax distolothrix* has  $2n=50$  chromosomes, 18 metacentrics, 18 submetacentrics, 10 subtelocentrics and 4 acrocentrics for both sexes (Fig. 2). The silver staining of the chromosomes

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\* Corresponding author, e-mail: claudio@ibb.unesp.br

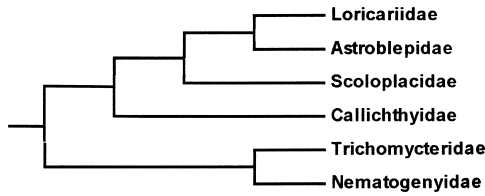


Fig. 1. Phylogeny of the superfamily Loricarioidea, as proposed by de Pinna (1998).

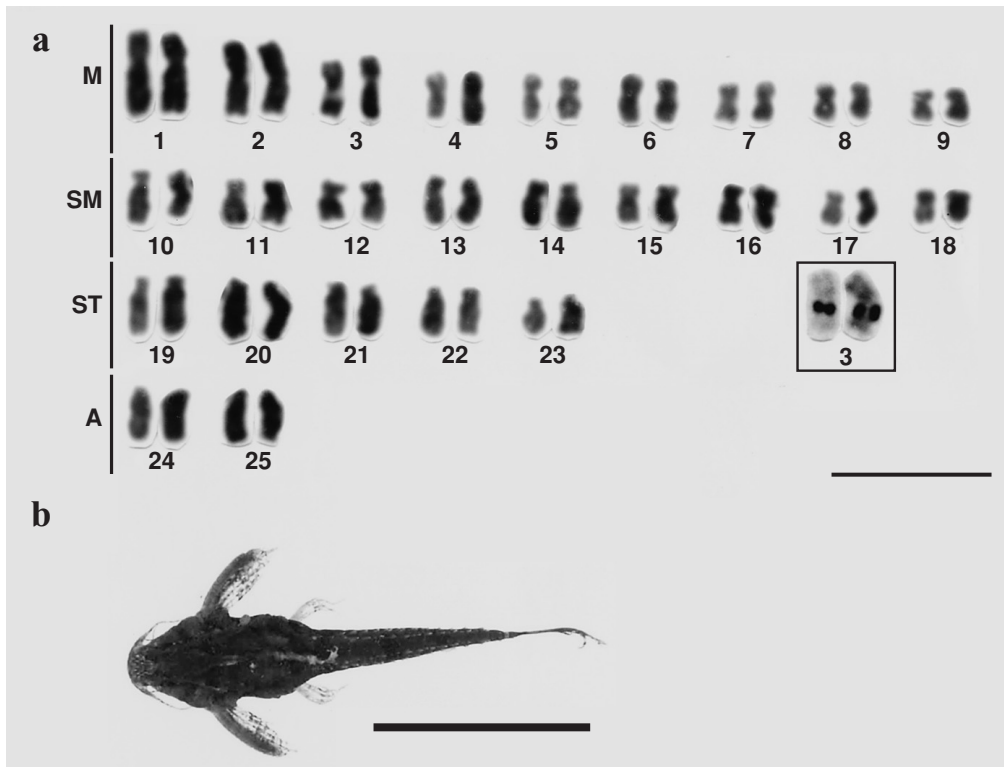


Fig. 2. Karyotype, Ag-NORs (inset) and specimen of *Scoloplax distolothrix*. Scale bars: 10  $\mu$ m (karyotype) and 5 mm (specimen).

revealed that the Ag-NORs are interstitially located on the long arms of a larger M pair (pair 3) (Fig. 2).

The presence of  $2n=50$  chromosomes in *S. distolothrix* is interesting since this diploid number is relatively rare among Siluriformes occurring in only about 5% of species analyzed (Oliveira and Gosztonyi 2000). Among the representatives of Loricarioidea this number is more rarified, occurring only in about 1.6% of the species analyzed (Oliveira and Gosztonyi 2000). Among the representatives of Callichthyidae, the sister group of Scoloplacidae (Fig. 1), only one species of *Corydoras*, *C. elegans* (Scheel *et al.* 1972), out of 53 species karyotyped, has  $2n=50$  chromosomes (1.9%) (Oliveira, C. unpublished database). Since the diploid number in callichthyids is usually higher than  $2n=54$ , it is possible to suggest that the karyotype of *S. distolothrix* was originated after several chromosomes rearrangements, mainly chromosome fusions or reciprocal translocations.

*Scoloplax distolothrix* displayed interstitial Ag-NORs, which is also uncommon among Siluriformes. However, this characteristic has been reported for species of several families of Loricari-

oidea as Trichomycteridae (Sato *et al.* 2004), Callichthyidae (Shimabukuro-Dias *et al.* 2004a, b) and Loricariidae (Alves *et al.* 2003).

Considering that the present description is the first one for the family Scoloplacidae, further studies will be necessary for a better understanding of the chromosome evolution in the group and about the relationship with other species of Loricarioidea.

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