## NOTAS E COMUNICAÇÕES

# IS *Callichtys* LINNÉ (OSTARIOPHISY, SILURIFORMES, CALLICHTHYIDAE) A MONOTYPIC GENUS?

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The monotypic genus *Callichthys* is one of the eight genera of the Callichthyidae family, a group of armored catfishes (GOSLINE, 1940). The chromossome data indicate that this catfish family is cytogenetically diverse (OLIVEIRA *et al.*, 1992). Cytogenetic information on the genus *Callichthys* is already available from specimens collected in the Paraná-Paraguai basin, East and South basins of Brazil (VENERE & GALETTI JR., 1986; SANTOS *et al.*, 1990; ERDTMAN *et al.*, 1990; OLIVEIRA, 1991). The present report describes the cytotypes of the nominal species *C. callichthys* from the Central Amazon basin. It also provides additional cytogenetic information on the Callichthyidae family.

We studied six specimes of *C. callichthys* from the Central Amazon basin collected in: Camaleão lake, located on the Marchantaria island (3°14'S, 60°10'W), in the Solimões river, aproximatelly 15 Km above its confluence with the Negro river (2 females); in two streams in the city of Manaus (3°07'S, 60°00'W) at the University of Amazonas (one juvenile) and Mindú Park (one juvenile and one female); and in the Candirú stream (2°45'25"S, 59°51'W) a small affluent of Puraquequara river, about 60 Km from Manaus (one juvenile). Chromosome preparations from kidney cells were performed following the same procedure used in our previous study with other Callichthyidae fishes (PORTO & FELDBERG, 1992b). The nucleolar organizer regions (NORs) and the heterochromatin (C-banding) were detected by the methods of HOWELL & BLACH (1980) and SUMNER (1972), respectively.

Chromosome data of *C. callichthys* from distinct localities, including those presented here, are summarized in Table 1. The two females from Marchantaria island had 2n-54, multiple nucleolar organizer regions (NORs) and one unpaired chromosome pair. C-banding analyses indicated the presence of pericentromeric, telomeric and interstitial heterochromatin blocks in their karyotype. We did not detect distinct heterochromatin blocks in the heteromorphic pair as did OLIVEIRA (1991) in *C. callichthys* from São Paulo. Only these specimens presented multiple NORs. This same cytotype (2n=54), including a heteromorphic chromosome pair, was also observed in the specimens of *C. callichthys* from

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**Table 1.** Karyotypic data for *Callichthys callychthys* from some different Brazilian basins (n = number of specimens, 2n= diploid number; KF= Karyotypic formulae; NORs= nucleolar organizer regions; M= metacentric, SM= submetacentric and ST=subtelocentric chromosomes; p= short arm; B- extra chromosomes).

| | | | | | KF | | NORs | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Basin and locality | n | cells | 2n | B | M-SM | ST-A | type | position | Arm | References |
| **The South** | | | | | | | | | | |
| Lagoa dos Patos | 01 | - | 74 | 16 | 26 | 32 | ST | terminal | p | Erdtman et al., 1990 |
| Rio Guaíba | 03 | 104 | 57-61 | 0-4 | 27 | 30 | ST | terminal | p | Erdtman et al., 1990 |
| Riacho Branquinha (Dam) | 23 | 260 | 58-62 | 0-4 | 26 | 32 | ST | terminal | p | Erdtman et al., 1990 |
| **The East** | | | | | | | | | | |
| Itanhaém | 03 | - | 58 | 0-5 | 44 | 14 | ST | terminal | p | Oliveira, 1991 |
| **The Paraná-Paraguai** | | | | | | | | | | |
| Guarulhos | 03 | - | 58 | - | 44 | 14 | ST | terminal | p | Oliveira, 1991 |
| Corumbataí | - | - | 58 | - | 56 | 02 | - | - | - | Venere & Galetti Jr., 1986 |
| Rio Paraná | 01 | - | 54 | - | - | - | - | - | - | Santos et al., 1990 |
| **The Amazon** | | | | | | | | | | |
| Marchantaria | 02 | 200 | 54 | - | 46 | 08 | SM,ST | terminal | p | Present study |
| University of Amazon | 01 | 13 | 56-58 | ? | - | - | ST | terminal | p | Present study |
| Candirú | 01 | 30 | 52 | 1 | 44 | 08 | M,SM | terminal | p | Present study |

the Paraná river near Itaipu dam. However, these specimes did not present multiple NORs (A.L.B.S. Portela, personal comunication). In both cases males were not analysed but the presence of an heteromorphic chromosome pair suggests the occurrence of a sex chromosome system. Its confirmation will be possible by the analyses of males, not yet captured. Nevertheless, if we assume that a ZZ-ZW system occurs in *C. callichthys* from Marchantaria island and Paraná river, then this is the first record in Callichthyidae, although a sex chromosome system had been reported in other siluriforms (AGNÈSE *et al.*, 1990).

The single specimen from Candirú stream had 2n=52 and a single pair of NORs. Distinct NOR carrier chromosomes were observed. Eventually one extra microcromosome was founded. This cytotype has not been detected in other basins, but is similar to the cytotyoe of 2n=54 described above. It lacks the unpaired chromosome pair and the multiple NORs, and presents one extra microchromosome.

The specimens from the city of Manaus (University of Amazonas and Mindú streams) showed a intraindividual variation in the chromosome number, nonetheless a basic diploid number of 2n=58 is proposed. Two diploid modal number in *C. callichthys* from the University stream were detected (2n=56 and 2n=58), notwithstanding extra microchromosomes had not been detected. Technical reasons do not permit us to explain these variabil-

ity since a low mitotic index was obtained. The specimens from Mindú stream also presented a intraindividual variation in the chromosome number (2n=58 to 2n=60) but related to the presence of up to 2 extra microchromosomes. These 3 specimens presented a single pair of NORs

Cytogenetic studies carried out by VENERE & GALETTI JR. (1986), ERDTMAN *et al.* (1990) and OLIVEIRA (1991) in *C. callichthys* from the states of São Paulo and Rio Grande do Sul, showed a basic diploid number of 2n=58. Notwithstanding, variation in this number was detected since a translocation in a largest submetacentric chromosome occured (2n=57), and up to 16 supernumerary chromosomes were detected (2n=58-74).

Based on the chromosome patterns and caught area we sugest that all cytogenetic reports so far published on *Callichthys* are dealing with isolated populations. The low samples of *C. callichthys* collected in the Central Amazon and others basins (table 1) could be indicative that it forms small sized populations. Such assumptions could partly explain the different chromosomal features that were observed within and between basins. In other callichthiids (*Corydoras* and *Hoplosternum*) a karyotypic differentiation was also observed with no differences detected at morphoanatomical level (OLIVEIRA *et al.*, 1990; PORTO & FELDBERG, 1992b)

In conclusion, due to the different basic diploid numbers detected in *C. callichthys* from different and the same basins (table 1), and considering that most of karyotypes of Callichthyidae species described so far are species-specific (OLIVEIRA, 1991; OLIVEIRA *et al.*, 1992; PORTO & FELDBERG, 1992a), the chromosome data support the view that *Callichthys* is not a monotypic genus as previously believed. However, the biological significance of these differences is poorly understood. A taxonomic revision, taking into account its wide distribution is, therefore, necessary in order to check its status. Efforts must also be made to solve some cytogenetic problems, as in the cases of additional and sex chromosomes, in order to supplement taxonomic data.

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