DISCOVERY OF SEX CHROMOSOME IN DECCAN MAHSEER *TOR KHUDREE* FROM TAMIL NADU WESTERN GHATS, INDIA

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Tor khudree and *Tor mussullah* are the Deccan Masheers, which grow 50-60kg. Masheer is the only game fish in India. The genus *Tor* is widely distributed in India, Pakistan, Nepal, Bangladesh, Malaysia, Thailand, Burma and Sri Lanka. Species of *Tor* are the biggest freshwater fishes in the world (Lakra, 1996). Due to its commercial value it has been unscrupulously hunted and is threatened (Molur & Walker, 1998). The genetic database may promote some options for their management and conservation.

Cytogenetic studies of fishes have been carried out by Manna (1984), Rishi (1989) and Lakra & Rishi (1991), but there is little published work on the genetic characterisation and conservation of Masheer (Lakra, 1996). Kushwaha *et al.* (2001) carried out NOR banding for *Tor khudree* and *Tor mussullah*. For taxonomic aspects the standard diploid is needed; and in earlier reports, the sex chromosomes had not been identified in *Tor khudree*. Hence, this study is significant as the sex chromosomes for *Tor khudree* has been reported for the first time.

Materials and methods: Fishes were caught and transported to the laboratory and were injected with 0.1% phytohemagulutin M (PHA) to activate cell division three hours before colchicine was injected. Then the fishes were injected with 0.05ml of colchicine/body weight of the animal and allowed to swim in the well aerated tank for 2-3hr. The spleen and kidney were taken and fixed in cornoys fluid. Slides were heated at 50°C and the spreads were made by direct air drying method. Then the slides were stained by 5% Giemsa. At least 50 good spreads were observed for each specimen. Numbers of metaphase spreads were scanned and photographed using Nikon microscope (100x). Karyotype was prepared following the classification of Leevan *et al.* (1964). The detailed karyological morphometry was taken by using an ocular micrometer and from that NF; the fundamental arm number; total arm length, short arm length, long arm length, average length, relative length, chromosomal index of each homologous pair were estimated.

Result and Discussion: *Tor khudree* has 2n=100 (4m+20st+25t+1 pair of heteromorphic sex chromosome) with the NF value of 74. Four metacentric, 20 subtelocentric, 25 telocentric and one pair of sex chromosome. The minimum length of chromosome is 0.066µm and the maximum length is 0.666µm the adjacent chromosome length varies 0-0.178µm. The presence of heteromorphic sex chromosome in *Tor tor* has been reported earlier (Khuda-Bukush, 1986; Lakra, 1996). In earlier study he reported 2n=100 for *Tor khudree* but did not report the sex chromosome. We found this sex chromosome in Sholaiyar reservoir (Chalakudi river) population (Fig. 1; Image 1 & 2[w]).

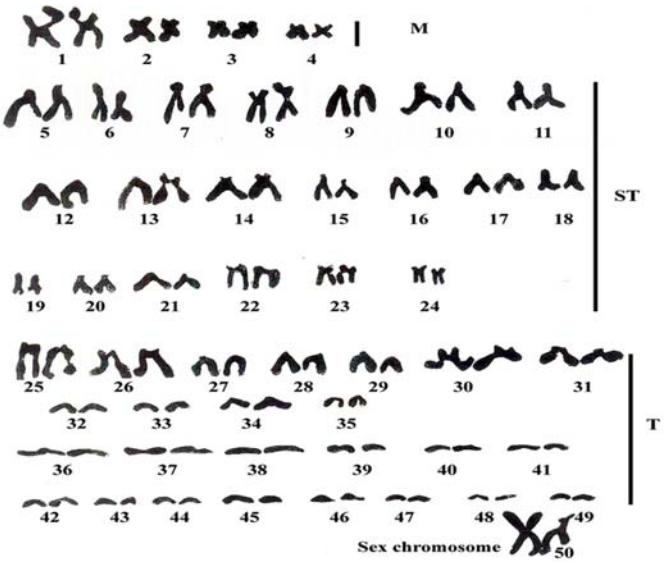

Figure 1. Idiogram of* Tor khudree *karyotype

This is the first time the existence of a dichotomy has been noted in this *Tor khudree* population. The occurrence of 100 chromosomes in *Tor* species due to polyploidization and such type of diploid-tetraploid relationships have already been reported in many group of fishes (Ohno *et al.*, 1967).

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[w] See Images in the web supplement at www.zoosprint.org

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