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RESEARCH PAPER

Assessment of genetic variability among fresh water murrels using random amplified polymorphic DNA markers

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ABSTRACT

DNA fingerprinting offers great potential in aquaculture and in fisheries as a tool for identification of individuals and population genetics. Random Amplified Polymorphic DNA (RAPD) is a marker technology that requires no cloning or sequencing and PCR based that may detect several loci simultaneously. The study used RAPD markers for murrels, especially for *Channa punctatus, Channa striatus* and *Channa orientalis.* The average interspecies genetic distance obtained among *Channa punctatus, Channa striatus* and *Channa orientalis* species were 0.4353, 1.0415 and 0.9037, respectively. DNA profiles generated in each species of murrles were unique that showed the genetic variability and species differentiation in fresh water muurels. It is concluded that RAPD is the exclusive molecular marker to check the genetic variability among the species of fresh water murrels and shows the relation and certain distance among the species of fresh water murrels.

Key words : Fresh water murrels, RAPD, Molecular markers, Genetic variability

A large number of snake head fishes inhabit naturally in rivers, canals, lakes and rice fields of north east and have importance in pharmaceutical products and traditional products. These fishes belong to the family Channidae and have much similarity in their morphological features as well as distribution (Arumugam., 1966). The species of genus *Channa* are important food fish as well as substantive component of fresh water and integrative fisheries apart from representing distinct adaptive linkage of accessory air breathing teleosts (Hasnain *et al*., 1993). Among them the work has been done on *C. punctatus*, *C. striatus* and *C. orientalis* because these are the common snake head fishes belonging to Channidae family and their food and economic value are better as compared to other snake head fishes (Hora and Pillay, 1962).

Earlier problems of species and the variant identification was addressed by employing classical morphological criteria and later biochemical and cytogenetics marker were employed to discriminate fresh water teleosts of the region (Hasnain *et al*., 1993; Arkhipchuk, 1999). DNA fingerprinting offers great potential in aquaculture and in fisheries as a tool for identification of individuals (Takagi and Tanigachi, 1995) and population genetic (Hallerman and Beckmann,1988). Among them the RAPD analysis is employed in differentiating sex chromosomes, genetic inheritance (Elo *et al*.,1997), gene mapping and fish conservation, because of its advantages of being quick and easy, requires little genomic material and having a high resolution. The objective of present work is to check the genetic distance among these fresh water murrels and to find the genetic identity among these species.

MATERIALS AND METHODS

The specimens of *Channa punctatus*, *C. striatus* and *C. orientalis* fishes were collected with the help of local fishermen. The blood was collected from caudal vien of the fish using 1ml syringe and preserved in 90% alcohol in refrigerator. Scales were also scrapped with the help of blunt foreceps from the caudal portion of the fish body and were preserved in 90% ethanol for further DNA isolation. The representative photographs of these fishes are shown below (Fig. 1):

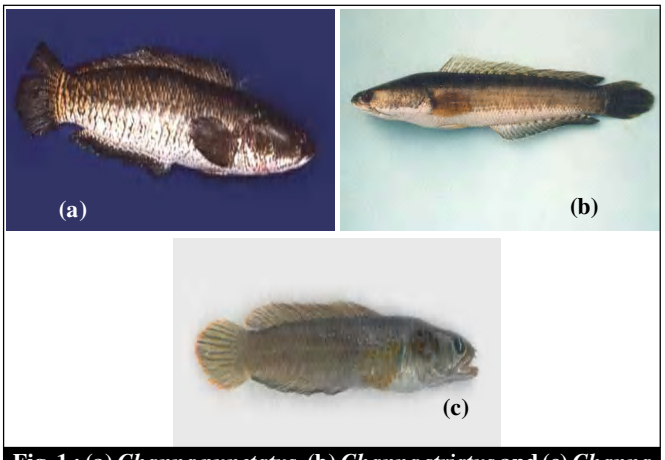

Fig. 1 : (a) ***Channa punctatus,*** **(b)** ***Channa striatus*** **and (c)** ***Channa orientalis*****, respectively**