

## Genetic Diversity Based Population Study of Freshwater Mud Eel (*Monopterusuchia*) in Bangladesh

**Authors :** M. F. Miah, K. M. A. Zinnah, M. J. Raihan, H. Ali, M. N. Naser

**Abstract :** As genetic diversity is most important for existing, breeding and production of any fish; this study was undertaken for investigating genetic diversity of freshwater mud eel, *Monopterusuchia* at population level where three ecological populations such as flooded area of Sylhet (P1), open water of Moulvibazar (P2) and open water of Sunamganj (P3) districts of Bangladesh were considered. Four arbitrary RAPD primers (OPB-12, C0-4, B-03 and OPB-08) were screened and RAPD banding patterns were analyzed among the populations considering 15 individuals of each population. In total 174, 138 and 149 bands were detected in the populations of P1, P2 and P3 respectively; however, each primer revealed less number of bands in each population. 100% polymorphic loci were recorded in P2 and P3 whereas only one monomorphic locus was observed in P1, recorded 97.5% polymorphism. Different genetic parameters such as inter-individual pairwise similarity, genetic distance, Nei genetic similarity, linkage distances, cluster analysis and allelic information, etc. were considered for measuring genetic diversity. The average inter-individual pairwise similarity was recorded 2.98, 1.47 and 1.35 in P1, P2 and P3 respectively. Considering genetic distance analysis, the highest distance 1 was recorded in P2 and P3 and the lowest genetic distance 0.444 was found in P2. The average Nei genetic similarity was observed 0.19, 0.16 and 0.13 in P1, P2 and P3, respectively; however, the average linkage distance was recorded 24.92, 17.14 and 15.28 in P1, P3 and P2 respectively. Based on linkage distance, genetic clusters were generated in three populations where 6 clades and 7 clusters were found in P1, 3 clades and 5 clusters were observed in P2 and 4 clades and 7 clusters were detected in P3. In addition, allelic information was observed where the frequency of p and q alleles were observed 0.093 and 0.907 in P1, 0.076 and 0.924 in P2, 0.074 and 0.926 in P3 respectively. The average gene diversity was observed highest in P2 (0.132) followed by P3 (0.131) and P1 (0.121) respectively.

**Keywords :** genetic diversity, *Monopterusuchia*, population, RAPD, Bangladesh

**Conference Title :** ICFAS 2016 : International Conference on Fisheries and Aquatic Sciences

**Conference Location :** New York, United States

**Conference Dates :** June 06-07, 2016