



## Research Highlight

# GENETIC VARIATIONS IN PARADISE THREADFIN (*POLYNEMUS PARADISEUS*)

**Bariah Ahmad**

Department of Physiology,  
Govt. College University, Faisalabad (GCUF), Pakistan

Paradise threadfin (*Polynemus paradiseus*) belongs to the family Perciformes<sup>1</sup> and it is found in Bangladesh, India, Malaysia, Myanmar, Thailand, Pakistan and Cambodia<sup>2</sup>, but it is widely distributed in the Indo-pacific Ocean such as the Bay of Bengal<sup>3</sup>. This species is globally known as Paradise threadfin but it has different common names in different countries like; in Bangladesh it is commonly known as Tapasi<sup>4,5</sup>, in India it is known as Tapsee-mahh<sup>6,7</sup>, in Malaysia its common names are striped threadfin and Tassel fish<sup>8</sup> and in Philippines its common names are Buka-dulce and Kulampiros<sup>9</sup>.

It is reported that a few years ago, it was available approximately all round the year in coastal waters. Consumers preferred this fish because of its good taste and palatability, but unfortunately, at present, this fish is not accessible in those water bodies and almost at the verge of extinction<sup>10</sup> because of apparent decline of the habitat, over-exploitation as well as lack of proper management<sup>11</sup>.

Moreover, amplified water pollution as well as devastation of breeding grounds has limited the natural breeding of *P. paradiseus*. As a

result of which, the wild populations of this species have become genetically poor. Therefore, it's the need of hour to understand the genetic status of the wild stocks of the species.

Accordingly, Allozyme electro-phoresis is a useful molecular marker that is employed as an efficient tool for fish population studies as well as fishery management<sup>12</sup>. Therefore, a new research was done in order to investigate the genetic status of the three river populations of *P. paradiseus* i.e., Tentulia, Paira and Kirtonkhola by means of horizontal starch gel electrophoresis method<sup>13</sup>.

During this study, on the basis of genetic distance, UPGMA dendrogram exhibited that the three river populations of this fish species constructed two clusters. Paira and Kirtonkhola populations made one cluster and separated from Tentulia population by the genetic distance of 0.014.

Conclusively, despite of the significant genetic variation is present among the wild populations of *P. paradiseus*, special care should be taken when taking management options. In this regard, detailed investigation

### Key words:

Polynemus paradiseus

paradise threadfin endangered species

breeding grounds water pollution

genetic status gel electrophoresis method

population structure genetic variation

regarding *P. paradiseus* population differentiation would be helpful in order to examine the population structure of this species. The existing differentiation appears to be weak; therefore, application of molecular markers has become vital with a higher polymorphism, like microsatellites, which have been able to detect a greater degree of population diversity as compared to allozymes.

## REFERENCES

1. Riede, K., 2004. Global register of migratory species - from global to regional scales. Final Report of the R & D-Projekt 808 05 081, Federal Agency for Nature Conservation, Bonn, Germany, pp. 329.
2. Froese, R. and Pauly, D. (Eds.), 2015. Fishbase. *World Wide Web electronic publication*.
3. Rashed-Un-Nabi, M. and M.H. Ullah, 2012. Effects of Set Bagnet fisheries on the shallow coastal ecosystem of the Bay of Bengal. *Ocean Coastal Manage.*, 67: 75-86.
4. Rahman, A. K. A., 1989. Freshwater fishes of Bangladesh. *Zoological Society of Bangladesh, Department of Zoology, University of Dhaka*, pp. 364.
5. Ahmed, M., 1991. A model to determine benefits obtainable from the management of Riverine fisheries of Bangladesh. *ICLARM Technical Report*, 28 pp. 133.
6. Talwar, P.K. and Kacker, R. K., 1984. Commercial sea fishes of India, *Zool. Surv. Ind.*, pp. 997.
7. Talwar, P.K. and Jhingran, A. G., 1991. Inland fishes of India and adjacent countries, *Volume 2. A.A. Balkema, Rotterdam*, pp. 541.
8. Department of Fisheries Malaysia. 2009. Valid local name of Malaysian marine fishes. *Department of Fisheries Malaysia, Ministry of Agriculture and Agro-based Industry*, pp. 180.
9. Ganaden, S. R. and Gonzales, F. L., 1999. Common and local names of marine fishes of the Philippines. *Bureau of Fisheries and Aquatic Resources, Philippines*, pp. 385.
10. Siddik, M.A.B., A. Nahar, F. Ahamed, Z. Masood and M.Y. Hossain, 2013. Conservation of critically endangered Olive Barb *Puntius sarana* (Hamilton, 1822) through artificial propagation. *Nature*, 11: 96-104.
11. IUCN., 1998. List of threatened animals of Bangladesh. *Proceedings of the Workshop on Bangladesh Red Book of Threatened Animals, February 22, 1998, Dhaka, Bangladesh*, pp: 13-13.
12. Islam, M.R. and M.B. Hossain, 2012. Genetic variation of three populations of Indian frog (*Hoplobatrachus tigerinus*) revealed by allozyme marker. *Int. J. Zool. Res.*, 8: 150-156.
13. Ashfaqun Nahar, M.A.B. Siddik, M.A. Alam and M.R. Chaklader, 2015. Population Genetic Structure of Paradise Threadfin *Polynemus paradiseus* (Linnaeus, 1758) Revealed by Allozyme Marker. *Int. J. Zool. Res.*, 11: 48-56.