**Abstract**

Killifish are brightly coloured small sexually dimorphic fish within the order Cyprinodontiformes. They have evolved annual life cycles and are diverse with nearly 1400 species worldwide within 14 families of 134 genera. *Aplocheilus*spp.is the only genus of killifish distributed in India, with six valid and several available names. In this present study, we investigate the identity and distribution of *Aplocheilusparvus*, a poorly-known species with very little information available after its original description, and questions on its identity and possible synonymy. Using an integrative approach of morphometrics, meristics and molecules, we clearly show the monophyly and distinctiveness of the species and diagnose it from other *Aplocheilus* species in India. *Aplocheilusparvus* is one of the smallest species within the genus, with a maximum length of around 40mm.Currently known from the Chembarambakkam Lake in Chennai, we provide updated information on the species distribution with range extending from Chennai to Kanyakumari along the East Coast and Ashtamudi Lake on the west coast of India.