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***Danio annulosus*, a new species of chain *Danio* from the Shuvolong Falls in Bangladesh (Teleostei: Cyprinidae: Danioninae)**

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Abstract

Danio annulosus, new species, is described from a small pool below the Shuvolong Falls in the Kaptai Lake system in Bangladesh. It shares with chain danios (*D. assamila*, *D. dangila*, *D. catenatus*, *D. concatenatus*, and *D. sysphigmatus*) a colour pattern consisting of series of dark rings with light interspaces along the side, complete lateral line, 14 circumpeduncular scales, a produced first ray in the pectoral fin, and a black humeral spot. It differs from other chain danios in possessing much shorter pectoral and pelvic fins, and a humeral spot that is slightly wider than deep instead of round or deeper than wide. The mitochondrial cytochrome *c* oxidase subunit I (COI) sequence separates *D. annulosus* from the most similar species, *D. catenatus* by a *p*-distance of 3.4%. Although recorded from only a single locality, *Danio annulosus* is expected to have a wider distribution in the Karnafuli River drainage.

Key words: DNA barcode, freshwater, morphometrics, phylogeny, taxonomy

Introduction

The southern Asian cyprinid fish genus *Danio* Hamilton comprises 24 valid species, most of which are native to India, Bangladesh, and Myanmar, although some species are also found in Pakistan, Laos, Thailand, southern China, Cambodia, Viet Nam, Malaysia, and the Indonesian island of Sumatra (Fang Kullander, 2001; Kullander & Britz, 2015). They are small fishes, between about 20 and 90 mm standard length, with distinctive colour patterns providing both important diagnostic characters and making them attractive ornamental fishes (Collins *et al.*, 2012; Fang Kullander, 2001; Kullander, 2015). The genus has gained particular interest as it includes the zebrafish *Danio rerio* (Hamilton), which is an important vertebrate model organism for biomedical research (Parichy, 2015). Several recent studies have analysed the interrelationships (e.g., Fang, 2003; Tang *et al.*, 2010) and species taxonomy of the genus (e.g., Kullander, 2015; Kullander & Britz, 2015), but much of the diversity remains undescribed.

Kullander (2015) recognized a distinctive group of five species of *Danio* characterized by the flank colour pattern, consisting of series of dark rings enclosing light centres somewhat similar to chains, which he named informally as chain danios: *D. assamila* Kullander, *D. catenatus* Kullander, *D. concatenatus* Kullander, *D. dangila* (Hamilton), and *D. sysphigmatus* Kullander. Chain danios are also distinctive in having a complete lateral line and 14 circumpeduncular scales, shared with *D. meghalayensis* Sen & Dey, *D. absconditus* Kullander & Britz, and *D. feegradei* Hora, but different from other *Danio* in which the lateral line is absent or abbreviated, and circumpeduncular scales vary between 10 and 12 (Kullander, 2015). Chain danios share with *D. feegradei* a relatively large size, 60–88 mm SL (Kullander, 2015), contrasting with the majority of *Danio*, which reach only between about 20 and 35 mm SL (Kullander & Fang, 2009).

In a survey of Bangladeshi freshwater fishes specifically for building a DNA barcode reference library, we encountered a species of chain *Danio* similar to *D. catenatus* Kullander and *D. concatenatus* Kullander from western Myanmar, but distinctive in mitochondrial DNA, details of the colour pattern, and with a shorter pectoral fin. This species was collected from the foot of a spectacular waterfall in the Chittagong Hills Tract draining to the man-made Kaptai Lake, which remains the only known locality for the species. The present paper provides a