

***Argulus japonicus* (Branchiura: Argulidae) parasitic on a freshwater minnow, *Opsariichthys platypus* (Cyprinidae): the second record from Shikoku, western Japan**

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Abstract. An immature female of *Argulus japonicus* Thiele, 1900 was collected from the caudal fin of a freshwater minnow, *Opsariichthys platypus* (Temminck & Schlegel, 1846), in a brook, Kochi Prefecture, Shikoku, western Japan. This is the second record of *A. japonicus* from Shikoku and a new prefectural record for the species in Japan.

Key words: *Argulus japonicus*, Branchiura, fish parasite, *Opsariichthys platypus*, Shikoku, new prefectural record

Shikoku is one of the four major islands of Japan with 18,297 km². Many species of freshwater fishes are found in Shikoku (*e.g.*, 199 species recorded from the Shimanto River, Otsuka *et al.*, 2010), but little information is available on their parasites, especially crustacean parasites. Only three species of them have so far been recorded from this island: one copepod, *Lernaea cyprinacea* Linnaeus, 1758 (Lernaeidae) (Kasahara, 1962; Nagasawa, 2013) and two branchiurans, *Argulus japonicus* Thiele, 1900 (Nagasawa *et al.*, 2010) and *Argulus coregoni* Thorell, 1864 (both Argulidae) (Nagasawa & Ikeda, 2011; Yuasa, 2014). During a parasitological survey of freshwater fishes in Shikoku, a specimen of *A. japonicus* was collected from the caudal fin of a freshwater minnow, *Opsariichthys platypus* (Temminck & Schlegel, 1846) (Cypriniformes: Cyprinidae). This is the second record of *A. japonicus* from this island.

The infected fish, 72 mm in standard length, was collected in a brook (the Nakayama River,

33°29'23"N, 133°24'26"E), a tributary of the Hage River within the Niyodo River system, at Hasuike, Tosa, Kochi Prefecture, on 21 April 2017. The fish was transported alive to the laboratory of Hiroshima University, Higashi-Hiroshima, where the specimen of *A. japonicus* was carefully removed from the fish, fixed and preserved in 70% ethanol. The specimen is deposited in the Crustacea (Cr) collection of the National Museum of Nature and Science, Tsukuba, Ibaraki Prefecture (NSMT-Cr 25568). The scientific and common names of fishes used in this paper follow Nakabo (2013) and Froese & Pauly (2017), respectively.

The specimen of *A. japonicus* collected (Fig. 1) is an immature female, measuring 3.2 mm long and 2.2 mm wide. The species was originally described by Thiele (1900) based on a female specimen from Tokyo, Japan, where the species has so far been recorded from various species of cyprinids from various localities (Nagasawa, 2009, 2011; Nagasawa *et al.*, 2012; Yamauchi & Shimizu, 2013). Recently, it was also found on Amur catfish, *Silurus asotus* Linnaeus, 1758 (Siluriformes: Siluridae) in captivity (Nagasawa

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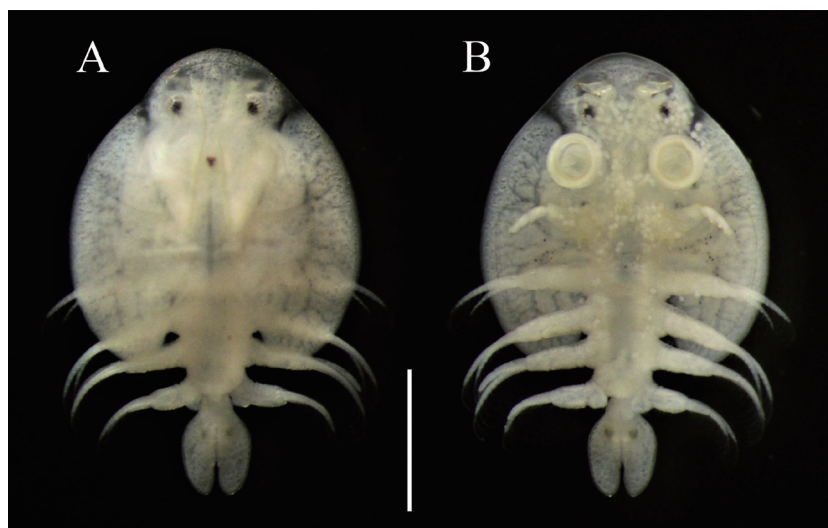


Fig. 1. *Argulus japonicus*, immature female, NSMT-Cr 25568, from the caudal fin of *Opsariichthys platypus* in a brook, Kochi Prefecture, Shikoku. Alcohol-preserved specimen. A, dorsal view; B, ventral view. Scale bar: 1 mm.

et al., 2010; Yamauchi *et al.*, 2011). In Shikoku, *A. japonicus* has been recorded only from Ehime Prefecture (Nagasawa *et al.*, 2010), and the present collection represents the first record of the species from Kochi Prefecture. The collection is also the second record of *A. japonicus* from *O. platypus* because this fish species has only recently become recognized as a host of *A. japonicus* (Nagasawa & Sato, 2014). In the brook where the specimen of *A. japonicus* was collected, two other cyprinids, dark chub, *Candidia temminckii* (Temminck & Schlegel, 1846), and gimbuna, *Carassius* sp., were observed and may serve as hosts for *A. japonicus* as well.

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