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A new leucosiid crab (Decapoda) from the middle Pleistocene Atsumi Group, Japan

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Abstract

Arcania kobayashinobuakii new species, a leucosiid crab is described from the middle Pleistocene Atsumi Group, central Honshu, Japan. The new species is similar to the extant *Arcania erinacea* (Fabricius, 1787), but differs in arrangement of spines on the carapace.

Key words: Crustacea, Decapoda, Leucosiildae, Pleistocene, Japan

Introduction

The genus *Arcania* Leach, 1817, comprises 20 species from the extant Indo-West Pacific regions (Ng *et al.*, 2008). Five species are recognized as fossils: *Arcania cornuta* (MacGilchrist, 1905) from the Pliocene of Java (Van Straelen, 1938), *A.* sp. cfr. *A. globata* Stimpson, 1858, from the Pleistocene of Japan (Kato and Karasawa, 1998), *A. elongata* Yokoya, 1933, from the Pleistocene of Japan (Kobayashi *et al.*, 2007), *A. shuishuni* (Hu and Tao, 1985) from the Pliocene of Taiwan; *A. undecimspinosa* De Haan, 1841, from the Pliocene of Taiwan (Hu and Tao, 2000); *A.* sp. cf. *A. undecimspinosa* De Haan, 1841, from the Pleistocene of Japan (Kato and Karasawa, 1998). Most recently, Vega *et al.* (2010) reported an unnamed species of *Arcania* from the Miocene deposit of Iran.

The purpose of the present paper is to describe a new species of *Arcania* from the middle Pleistocene Atsumi Group, Japan. The specimen was collected from sandy-silt of the Toyohashi Formation of the Atsumi Group exposed at Takamatsu, Tahara City, Aichi Prefecture, central Japan (Karasawa and Tanaka, 1994, Fig. 1). The formation contains rich marine fossils such as mollusks, barnacles, and decapods. Nakashima *et al.* (2008) showed that the Toyohashi Formation was correlated with Marine Isotope Stage 9 (middle Pleistocene).

The specimen described here is deposited in the Mizunami Fossil Museum (MFM).

Systematics

Family Leucosiidae Samouelle, 1819
Subfamily Ebaliinae Stimpson, 1871
Genus *Arcania* Leach, 1817



Fig. 1. *Arcania kobayashinobuakii* new species, MFM 142023 (holotype), carapace, dorsal view, scale bar=5 mm.

Arcania kobayashinobuakii new species

(Fig. 1)

Diagnosis: Carapace strongly convex longitudinally and transversely; dorsal surface spinose with irregular, well-developed spines. Gastric regions with 5 pairs of simple spine; cardiac region with 2 simple spines transversely arranged; intestinal region with median and posterior spinulose spines, a pair of simple spine present at base of posterior spine; branchial regions with 6 simple spines. Anterolateral margin with 4 simple spines; posterolateral margin with 3 spines; posterior margin with 2 large, spinulose spines.

Derivation of name: In honor to my collaborator, Nobuaki

Kobayashi (Gamagouri, Aichi; Assistance of the Mizunami Fossil Museum), who donated his fossil crab collection.

Description: Carapace small, strongly convex longitudinally and transversely. Front, frontal, and anterior gastric regions and marginal part of anterior carapace not preserved. Dorsal surface spinose with well-developed spines of uneven size; regions poorly defined, gastric and intestinal regions separated from branchial regions by shallow groove. Hepatic region swollen with inflated margin fringed with 2 simple spines. Gastric regions ornamented with 5 pairs of simple spine. Cardiac region with 2 simple spines transversely arranged. Intestinal region with median and posterior spinulose spines; posterior spine longest, directed posteriorly; a pair of posterolaterally directed simple spine present at the base of posterior spine. Branchial regions ornamented with 6 simple spines. Anterolateral margin with 2 simple spines behind hepatic region, epibranchial spine not preserved. Posterolateral margin bearing 3 spines; first and third spines simple, second spine spinulose, largest of all spines. Posterior margin bearing 2 large, spinulose spines.

Remarks: The present new species resembles *Arcania erinacea* (Fabricius, 1787) from the Indo-West Pacific (Galil, 2001), but differs in arrangement of spines. The carapace spines of the new species are more sparsely arranged than those of *A. erinacea*.

Material examined: MFM142023 (holotype).

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