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A new species of *Munidopsis* (Decapoda: Anomura) from the Miocene Higashibessho Formation, Japan

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Abstract

Munidopsis kaedetatsuyai, a new species of the squat lobster genus *Munidopsis* Whiteaves (Decapoda: Anomura) is described from the Higashibessho Formation (uppermost Lower–lowermost Middle Miocene) of the Yatsuo Group in Toyama Prefecture, central Japan. This is the first recognized species of the genus and the second record for Munidopsidae Ortmann from the Cenozoic of Japan.

Key words: Galatheoidea, Munidopsidae, Miocene, Higashibessho Formation, Japan

Introduction

Takeda, Mizuno, and Yamaoka (1986) and Mizuno and Takeda (1993) reported an unnamed species of *Munidopsis* Whiteaves, 1874 (Galatheoidea: Munidopsidae) from the Lower Miocene Morozaki Group of central Japan. Karasawa et al. (2017) erected the new munidopsid *Mizunotengus makiguchimai* Karasawa and Ando in Karasawa et al., 2017, based upon re-examination of their specimens. Therefore, *Munidopsis* as a fossil has not yet been known from Japan. The purpose of this note is to describe a new species of *Munidopsis* from the Miocene Yatsuo Group of Toyama Prefecture, central Japan. The specimen described herein was collected from the mudstone of the Higashibessho Formation of the Yatsuo Group exposed at Kajio (=Loc. 4 of Shimizu et al., 2000, p. 44, fig. 1), Yatsuo-machi, Toyama City, Toyama Prefecture. The specimen occurred in deposits, associated with fragments of crinoids and scleractian corals. The detailed information on geology and paleontology for the locality has been given by Shimizu et al. (2000). Nakajima et al. (2019) showed that the Higashibessho

Formation was latest Early–earliest Middle Miocene (NPD3B–NPD4A Zone of Yanagisawa and Akiba’s (1998) scale of diatoms).

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

Systematics

Superfamily Galatheoidea Samouelle, 1819

Family Munidopsidae Ortmann, 1898

Genus *Munidopsis* Whiteaves, 1874

Type species: *Munidopsis curvirostra* Whiteaves, 1874, by monotypy.

Fossil species included: *Munidopsis canadensis* Nyborg, Garassino, De Angeli, and Ross, 2015 (Eocene, Canada); *M. foersteri* Feldmann, Tshudy, and Thomson, 1993 (Upper Cretaceous (Campanian), Antarctica); *M. kaedetatsuyai*, new species (Lower–Middle Miocene); *M. lieskovensis* Hyžný and Schlögl, 2011 (Lower Miocene, Slovakia); *M. palmuelleri* Hyžný, Gašparič, Robins, and Schlögl, 2014 (Middle Miocene, Slovenia); *M. salinaria* Gašparič, Hyžný,

Jovanović, Ćorić, and Vrabac, 2019 (Middle Miocene, Bosnia and Herzegovina); *M. scabrosa* Feldmann and Wilson, 1988 (Upper Eocene, Antarctica).

***Munidopsis kaedetatsuyai*, new species**

(Fig. 1.A–1.C)

[New Japanese name: Kaede-sinkai-kosiori-ebi]

Diagnosis: Carapace excluding rostrum subrectangular, longer than wide, weakly convex side to side; fronto-orbital margin wide; rostrum triangular, about 20 percent of carapace length, with weakly rimmed, unarmed lateral margins and dorsal medial keel; upper orbital margin sinuous, entire, oblique, weakly rimmed, with subtle antennal projection; anterolateral spine short; lateral margins subparallel with well-developed spine behind anterolateral spine; posterior margin slightly concave, fringed with transverse ridge; dorsal regions poorly defined with interrupted, transverse ridges which vary in width; cervical groove and transverse depression on cardiac region deep.

Etymology: The specific name is derived from Tatsuya Kaede, who is my best friend and collaborator of my work.

Material examined: MFM83084 (1 carapace); Kajio (=Loc. 4 of Shimizu et al., 2000, p. 44, fig. 1), Yatsuo-machi, Toyama City, Toyama Prefecture; mudstone of the Higashibessho Formation; latest Early–earliest Middle Miocene, NPD3B–NPD4A Zone of Yanagisawa and Akiba’s (1998) scale of diatoms (Nakajima et al., 2019); collected by T. Kaede.

Description: Carapace excluding rostrum subrectangular, longer than wide, weakly convex side to side. Fronto-orbital margin wide, 75 percent of maximum carapace width. Rostrum triangular with acute tip, horizontal in lateral view, about 20 percent of carapace length, about 12 percent of carapace width; lateral margin nearly straight, weakly rimmed, unarmed; dorsal surface with medial keel. Upper orbital margin sinuous, entire, oblique towards anterolateral angle; antennal projection present, but subtle. Anterolateral spine short, directed anteriorly. Lateral margins slightly sinuous, subparallel, with spine behind anterolateral spine; spine well developed, acutely triangular, directed anteriorly. Posterior margin slightly concave, fringed with transverse ridge. Dorsal regions poorly defined, ornamented with interrupted, transverse ridges which vary in width. Fronto-orbital and hepatic regions depressed. Epi-, proto-, and mesogastric regions not differentiated. Cervical groove deep, U-shaped, extending from margin just anterior lateral spine to posteriorly along margins of gastric region; lateral elements nearly straight; axial element shallow, concave. Cardiac region with deep transverse depression anteriorly. Epibranchial region separated from other branchial regions by shallow posterior cervical groove; mesobranchial and metabranchial regions not differentiated.

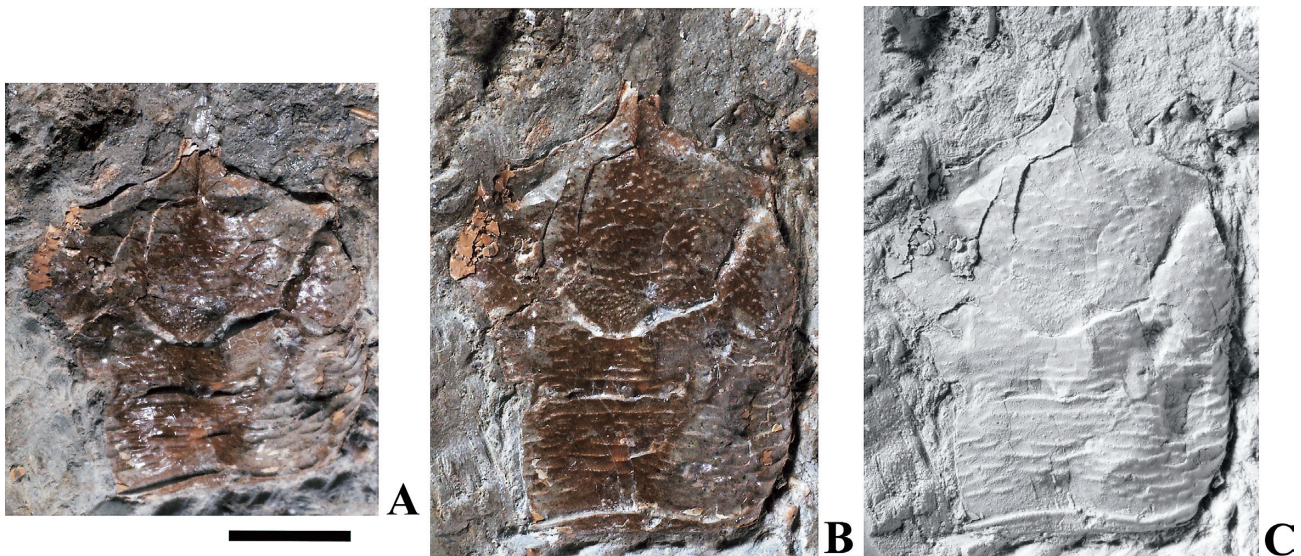


Fig. 1. *Munidopsis kaedetatsuyai*, new species. Holotype (MFM83084), carapace. A, frontal view; B, C, dorsal view. Scale bar = 5 mm. C is a whitening image coated with ammonium chloride sublimate.

Remarks: The present new species is most similar to *Munidopsis palmuelleri* Hyžný et al., 2014, from the Middle Miocene of Slovenia, but differs in that the rostrum has the axial keel, the upper orbital margin is oblique with a subtle antennal projection, the lateral margins possess a well-developed spine behind the anterolateral spine, and the fronto-orbital and hepatic regions are depressed. The poorly-defined dorsal regions with a lateral spine readily distinguish the new species from other five fossil species, *M. canadensis* Nyborg et al., 2015, from the Eocene of Canada, *M. foersteri* Feldmann et al., 1993, from the Upper Cretaceous of Antarctica, *M. lieskovensis* Hyžný and Schlögl, 2011, from the Lower Miocene of Slovakia, and *M. salinaria* Gašparič et al., 2019, from the Middle Miocene of Bosnia and Herzegovina, and *M. scabrosa* Feldmann and Wilson, 1988, from the Upper Eocene of Antarctica.

This species represents the first record for *Munidopsis* from the Cenozoic deposits of Japan.

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Appendix

Munidopsis kaedetatsuyai Karasawa, new species LSID: urn:lsid:zoobank.org:act:C48EAC2F-4848-457F-9DD7-ABD1A2142AB7

新称: カエデシンカイコシオリエビ

Erratum

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Erratum: Cenozoic pedunculate barnacles (Cirripedia: Thoracica) deposited in the Mizunami Fossil Museum, Japan

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There was a typographical error in a species name (page 32, left 5th line). The incorrectly spelled name, *sistinctum*, should be replaced with the correct name, *distinctum*. Thank J. S. Buckeridge (Earth & Oceanic Systems Group, RMIT, Melbourne) for his advice.