ACTA PALAEONTOLOGICA POLONICA

Thyasirid bivalves from Cretaceous and Paleogene cold seeps

Krzysztof Hryniewicz, Kazutaka Amano, Robert G. Jenkins, and Steffen Kiel
Acta Palaeontologica Polonica 62 (4), 2017: 705-729 doi:https://doi.org/10.4202/app.00390.2017

We present a systematic study of thyasirid bivalves from Cretaceous to Oligocene seep carbonates worldwide. Eleven species of thyasirid bivalves are identified belonging to three genera: *Conchocele, Maorithyas,* and *Thyasira*. Two species are new: *Maorithyas humptulipsensis* sp. nov. from middle Eocene seep carbonates in the Humptulips Formation, Washington State, USA, and *Conchocele kiritachiensis* sp. nov. from the late Eocene seep deposit at Kiritachi, Hokkaido, Japan. Two new combinations are provided: *Conchocele townsendi* (White, 1890) from Maastrichtian strata of the James Ross Basin, Antarctica, and *Maorithyas folgeri* (Wagner and Schilling, 1923) from Oligocene rocks from California, USA. Three species are left in open nomenclature. We show that thyasirids have Mesozoic origins and appear at seeps before appearing in "normal" marine environments. These data are interpreted as a record of seep origination of thyasirids, and their subsequent dispersal to non-seep environments. We discuss the age of origination of thyasirids in the context of the origin of the modern deep sea fauna and conclude that thyasirids could have deep sea origins. This hypothesis is supported by the observed lack of influence of the Cretaceous and Paleogene Oceanic Anoxic Events on the main evolutionary lineages of the thyasirids, as seen in several other members of the deep sea fauna.

Key words: Bivalvia, Thyasiridae, cold seeps, deep sea, ecology, evolution, Cretaceous, Paleogene.

Krzysztof Hryniewicz [krzyszth@twarda.pan.pl], Institute of Paleobiology, Polish Academy of Sciences, ul. Twarda 51/55, 00-818 Warszawa, Poland. Kazutaka Amano [amano@juen.ac.jp], Department of Geoscience, Joetsu University of Education, 1Yamayashiki Joetsu City, Niigata 943-8512, Japan. Robert G. Jenkins [robertgj@staff.kanazawa-u.ac.jp], School of Natural System, College of Science and Engineering, Kanazawa University, Kanazawa City, Ishikawa 920-1192, Japan. Steffen Kiel [steffen.kiel@nrm.se], Swedish Museum of Natural History, Department of Palaeobiology, Box 500 07, 104 05 Stockholm, Sweden.

This is an open-access article distributed under the terms of the Creative Commons

Attribution License (for details please see creativecommons.org), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.


Full text (1,346.7 kB)