

# Shelly fossils from the upper Ediacaran formation in southwestern Mongolia

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A rapid diversification event occurred in Cambrian is referred to as the “Cambrian Explosion”. The Cambrian Explosion is not only an extremely important event in animal history in that almost all the modern animal phyla have appeared, but also in that many lineages of animals have formed shells. The small remains of initial shell-bearing organisms are collectively called small shelly fossils (SSFs). SSFs are known from the late Ediacaran to early Cambrian, though the fossil record is not enough to reveal the evolution of the shell acquirements in animals.

Here we report a new possible SSFs assemblage which was found from the middle part of the late Ediacaran Zuun-Arts Formation in southwestern Mongolia. Several different types of fossils were found from the assemblage. One of which had the similar shape to *Ceratoconus*, one of the early Cambrian SSFs. However, none of them were comparable to the Ediacaran SSFs. Two different types of spicules, which probably belong to sponges, were also found from the middle part of the formation. One is tetractine structure with the processes in triangular section, and another is needle-like structure with several small spikes extending along the axis. None of them are yet to be identified as previously known SSFs species.

Algal fossils and *Arenicolites*, a U-shaped ichnofossil, have already been discovered from the base and middle part of the Zuun-Arts Formation, respectively (Dornbos et al., 2016; Oji et al., in press). The possible SSFs found from the Zuun-Arts Formation will be identified, and will be compared with the late Ediacaran to early Cambrian fossil assemblage from the other sections, such as China.

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