Radiolarian assemblage of Barremian to Aptian interval in the Tethys and the influence of the oceanic anoxic event (OAE) 1a

***Li, Xin*[1,*], Matsuoka, A.[2], Chiari, M.[3], Bertinelli, A.[4], Wang, C.[5]**

*1) Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, Nanjing, China, *E-mail: lixindida@163.com*
2) Niigata University, Niigata, Japan
3) Italian National Research Council, Firenze, Italy
4) Università degli Studi di Perugia, Perugia, Italy
5) China University of Geosciences, Beijing, Beijing, China

Radiolarian biostratigraphic study ranging from the latest Barremian to the Aptian has been carried out in a siliceous sequence (section BB1) near Babazhadong in southern Tibet. No fossils other than radiolarians can be obtained from the strata. Based on the phyletic evolution of *Aurisaturnalis* and *Turbocapsula*, two radiolarian zones for the Barremian to Aptian interval have been defined: the *Aurisaturnalis carinatus* Zone and the *Turbocapsula costata* Zone. This zonal scheme can be used for identifying episodes, such as OAEs, in the pelagic realms (LI et al., 2017).

Stepwise extinction and radiation events of radiolaria in the late Early Aptian have been reported in the western Tethys (ERBACHER & THUROW, 1997). The Umbria–Marche sedimentary sequence in central Italy was accumulated during the Middle Jurassic to the Eocene at bathyal depths within a relatively isolated pelagic basin. The lower Cretaceous Maiolica Formation is overlain by the Marne a Fucoidi Formation. The section of Gorgo a Cerbara in the northern Umbria–Marche Basin has been constrained geochronologically by planktic foraminiferal biozones, calcareous nannofossil biozones, and magnetostratigraphy.

Totally, 52 samples from the section BB1 and 15 samples from the section Gorgo a Cerbara were collected for our radiolarian biostratigraphic study. During the Early Aptian, black shale layers (OAE 1a) were deposited in marine successions of the Mediterranean Tethys. However, no black shale layers are recorded in the siliceous sequence of southern Tibet. Comparison of radiolarian assemblages from sections of Gorgo a Cerbara and BB1 shows the faunal change before and around the OAE 1a event in the whole Tethys. Our radiolarian biostratigraphic study on the pelagic basin of Umbria–Marche will provide the better age-constraint for the radiolarian zonation of LI et al. (2017) and is necessary to testify the applicability of this zonation. The Early Aptian OAE 1a is located between the first appearance bio-horizon of the genus *Turbocapsula* and the evolutionary first appearance bio-horizon of *T. costata multicostata*.

ERBACHER, J. & THUROW, J., 1997. Mar. Micropaleontol., **30**, 139–158.
LI, X. et al., 2017. Mar. Micropaleontol., **130**, 29–42.