

A new calcareous nannofossil record in the Lower Jurassic from Kermanshah, western Iran: A clue for evolutionary reconstructions

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An accurate calcareous nannofossil analysis was performed for the first time on Jurassic radiolarian-bearing deposits in the Kermanshah area (High Zagros Belt, western Iran). The Zagros orogenic system is a NW–SE-trending fold belt that stretches from southwestern Iran to northern Iraq. The belt was produced during the collision between the Arabian Plate and the Central Iran Cimmerian Block (Ziegler et al., 2001; Abdi et al., 2014). The High Zagros Belt corresponds to the tectonostratigraphic domain that marks the northeastern rim of the former Arabian passive margin. According to palaeogeographic reconstructions, this region was located along the northern margin of the Tethys Ocean. Calcareous nannofossils not only allowed a precise age assignment of these sediments to a latest Sinemurian to Early Pliensbachian age (~190 Ma, Subzone NJT2b of Mattioli and Erba, 1999), but also revealed an assemblage dominated by *Mitrolithus elegans* and *M. lenticularis*, species considered to be typical of the Tethyan domain (i.e. southwestern part of the epicontinental Tethys; Bown, 1987). More surprisingly, some samples contained an undescribed species of *Mitrolithus* that is characterised by a very thick spine. The spine possesses a conical globular shape and is composed of plates spirally arranged around an axial canal. The calcite plates are arranged tangentially to the longitudinal axis. The spines, which are similar to loxolith coccoliths with their delicate, tubular structure, are easily detached, and individual spines can be identified and recorded. This study opens new avenues for the interpretation of evolutionary patterns of Mesozoic calcareous nannofossils, and might bring new insights on the origin of the enigmatic nannoconid group.

References

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