



Morphological features of Triassic and Late Cretaceous high-latitude radiolarian assemblages (comparative analysis)

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High-latitude radiolarian assemblages of Mesozoic represent particular interest for Boreal-Tethyan correlation of Mesozoic as well as for their paleobiogeography. Radiolarians are the only planktonic protists that present both in low- and high-latitude Mesozoic sections, therefore they have high importance. The aim of this work is to distinguish common and different features of Triassic and Late Cretaceous high-latitude assemblages of Radiolaria during their comparative analysis. We use material from Triassic of Omolon Massif (NE Siberia) (Bragin, Egorov, 2001) and Kotel'nyi Island (Arctic) (Bragin, Bragina, 2009; Bragin, in press) and Late Cretaceous of Western Siberia (Amon, 2000) and Kamchatka Peninsula (Vishnevskaya, 2005; Bragina, 1991). The main trends of radiolarian assemblages from these sections are: quantitative domination of some taxa, presence of characteristic high-latitude taxa that are absent or very rare in low-latitude regions, and relatively low taxonomic diversity with absence of many high taxa and many morphotypes. We made following conclusions after comparative analysis:

1. Triassic assemblages are dominated by morphotypes with bipolar main spines (*Pseudostylosphaera* and similar forms), and by pylomate forms (*Glomeropyle*). Genus *Glomeropyle* has bipolar distribution pattern and it is typically high-latitude taxon. Late Cretaceous assemblages are dominated by forms with bipolar three-bladed main spines (*Amphisphaera*, *Protoxiphontractus*, *Stylosphaera*), by prunoid morphotypes (*Amphibrachium*, *Prunobrachium*), discoid spongy forms (*Orbiculiforma*, *Spongodiscus*) by three-rayed (*Paronaella*, *Spongotripus*), four-rayed (*Crucella*, *Histiastrum*) and multirayed stauraxon forms (*Pentinastrum*, *Multastrum*). Pylomate forms (*Spongopyle*) are present in the Late Cretaceous high-latitude assemblages but not so common.
2. Spherical forms with spines that possess apophyses (*Kahlerosphaera*, *Dumitricasphaera*) are common for Triassic high-latitude areas, but not present in the Cretaceous assemblages. Spherical forms with hollow, commonly twisted spines (*Capnuchosphaera*) and with two-bladed spines (*Zhamojdasphaera*) are present only in the Triassic assemblages.
3. Saturnalids are present both in Triassic and Late Cretaceous high-latitude assemblages but not common.
4. Stauraxon three-rayed forms (like *Paronaella*) are very rare in the Triassic high-latitude assemblages but very common in the Late Cretaceous ones. Some Late Cretaceous morphotypes of this type have bipolar distribution pattern (*Spongotripus*).
5. Discoidal forms in the Triassic high-latitude assemblages are represented by *Tetraspongodiscus* – small forms with 4 radial spines. Cretaceous discoids are highly more diverse and are represented by numerous taxa with variable morphology.
6. Multicyrtoid nassellarians with longitudinal ridges are very rare in the Triassic (*Whalenella*), but very common in the Late Cretaceous (*Pseudodictyomitra*, *Dictyomitra*). Multicyrtoid *Stichomitra*-type specimens are present both in the Triassic and Cretaceous assemblages.
7. Hat-shaped and highly ornamented *Nassellaria* are almost absent in the high-latitude Triassic and Late Cretaceous assemblages.
8. During long evolutionary history of Radiolaria typically boreal forms strongly differ, and only morphotypes with bipolar main spines and pylomate forms retain their significance as high-latitude indicators.