

TETRACYCLUS-SPECIES FROM MIOCENE DEPOSIT OF KHANKA LAKE (RUSSIA, PRIMORYE)

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The research of A.P. Jousé and A.I. Moiseeva was devoted to the history of the development of the diatomaceous flora of Khanka Lake from the Miocene epoch till our days. The following species of the genus *Tetracyclus* Ralfs were described by these authors: *T. lacustris* var. *elongates* Hustedt, *T. ellipticus* (Ehrenberg) Grunow, *T. jimboi* (Pantocsek) Jousé, *T. polygibbum* (Pantocsek) Jousé, *T. aff. rupestris* (Braun) Grunow, *T. circulus* Jousé, *T. ellipticus* var. *clypeus* (Ehrenberg) Hustedt, *T. ellipticus* var. *lancea* f. *lancea* Hustedt, *T. ellipticus* var. *lancea* f. *subrostrata* Hustedt, *T. ellipticus* var. *latissimus* Hustedt, *T. lacustris* var. *strumosus* (Ehrenberg) Hustedt.

As the previous investigations were conducted by means of light microscopy (LM) it was necessary to review the systematic position of the above-mentioned taxa and to study scanning electron microscopy (SEM) the morphology of valves taking into consideration the modern views of valve ultrastructure and taxonomic changes.

In this area we pointed out the following species of genus *Tetracyclus*: *Tetracyclus* sp., *T. ellipticus*, *T. polygibbum*, *T. glans* (Ehrenberg) Mills, *T. excentricum* (Ehrenberg) Williams, *T. lancea* (Ehrenberg) Peragallo, *T. radius* Saito-Kato, Hayashi & Tanimura. In our previous study we identified (Dubrovina *et al.*, 2011) the *Tetracyclus* sp. as *T. clypeus* (Ehrenberg) Li, and the previous investigators (Jousé, 1953; Moiseeva, 1971) defined it as *T. ellipticus* var. *clypeus*. However more detailed investigation of the valve ultrastructure showed significant differences from the type material (Williams, 1989).

It was shown that *Tetracyclus* sp. is similar to *T. clypeus* by its circular shape of its valves, the deep mantle of valve, the numbers and situation of the primary transapical ribs, but it differs by the absence of secondary ribs at the polar regions, the nonuniform density of the striae (it forms a rare row in the central part of a valve, but rows at the polar regions are compact), the numbers and position of the rimoportula and the great variety in the length of sternum.

The absence of the secondary ribs at the poles is one of the characteristic features of other circular species *T. subdivisium* Williams & Li, *T. subclypeus* Li & Williams, *T. excentricum* (Ehr.) Williams and *T. divisium* (Ehr.) Li. But *Tetracyclus* sp. also differs from the above-mentioned species by the deep mantle of the valve, the nonuniform density of the striae, the different position and construction of the ribs and the number and position of the rimoportula.

Taking the above-mentioned features as a ground we presuppose that the above-mentioned species *Tetracyclus* sp. is a new species.