

Microbiological nature of kerites from precambrian Volyn' pegmatite

¹ ZHMUR S.I., ²GORLENKO V.M. ¹Institute of Lithosphere of Marginal Seas, Moscow, Russia, ²Institute of Microbiology, Moscow, Russia

Paleomicrobiological analysis of unique fine fibrous (0,3-30 mk) kerites found in one of the kamera pegmatite of Volyn' (1800 -1750 mln. years), referred to as an excellent example of abiogenic highly constructive carbon substance by all researchers, revealed in them morphologically well preserved remnants of cyanobacteria, similar to modern *Spirulina*, *Chaemosiphon*, *Mastogocladus* and *Phormidium*. The studies of ultra thin cuts and replicas of cryofractures under high resolution electronic microscope showed that fine fibrous kerites contain traces of cellular structures. In remnants of cellular material it is possible to identify heathes, cell walls, membranes and cytoplasm. Fatty acids obtained from kerites contain a number of components typical for prokaryotic microbial community. Felt-like character of kerites structure, its fine lamination and identified microorganisms together with the results of fatty acids analysis testify to the fact that the Volyn' kerites are remnants of cyanobacteria benthic community taken off from substratum (so called floating mat), which had been functioning in places of out-pouring hydrothermal springs. Suggestions were made that the preservation of living structure of community was possible thanks to its floating position and low mineral content of thermal water as well as absence of sediment accumulation and due to the fact that microorganisms skeleton was saturated with bitumen substance, being formed at the initial stage of biomass transformation.