

## Late Permian (Lopingian) plant mesofossils from the Eleonora locality, Vologda Region of Russia

Eugeny Karasev <sup>1</sup>, Elżbieta Turnau <sup>2</sup>

<sup>1</sup>Paleontological Institute of the Russian Academy of Sciences; Moscow, Russia, [karasev@paleo.ru](mailto:karasev@paleo.ru)

<sup>2</sup>Institute of Geological Sciences, Polish Academy of Sciences, Cracow Research Centre, Kraków, Poland

We present preliminary data about plant mesofossils from the Eleonora locality (Vologda Region, Russia). In 2011, M.A. Arefiev discovered a small clay lens containing mesofossils on the right bank of the Malaya Severnaya Dvina River near the Gorka Village of the Vologda Region and named it the Eleonora locality (Arefiev et al., 2014). Besides plant mesofossils were found ostracods, bivalves, fish scales and bones of tetrapods. Based on ostracod and fish assemblages, the deposits of the Eleonora locality was dated to the Late Permian (Lopingian), which corresponds to the top of the Vyatka Stage of Russian GSS (Arefiev et al., 2014). Arefiev and Yaroshenko (2015) published the first data on the palynological assemblage. The plant mesofossils include dispersed megaspores (about 100 specimens) and numerous fragmentary cuticles of gymnosperm and bryophyte leaves. The megaspore assemblage contains megaspores of *Erlansonisporites?* sp.; only one specimen of *Maiturisporites* sp. was found. Earlier, more or less representative, transitional Permian / Triassic megaspore assemblages were obtained from the Nedubrovian Member of the Vokhmian Formation at the Nedubrovo locality where megaspores were represented by species of the genera *Otynisporites* and *Maexisporites*. Recently, we have described more diverse megaspore assemblages from the Ryabinsk Member of the Vokhmian Formation at the Sholga locality, which have much in common with those from the Nedubrovo locality (Karasev, Turnau, 2015). Megaspores from older Vyatka deposits in the Moscow syncline are represented by megaspores, which were found only in association with leaves of the lycopsid genus *Fasciostomia* (Gomankov, Meyen, 1986). Thus, the assemblage of megaspores from the Eleonora locality has no common taxa with megaspore assemblages known in the Late Permian and Early Triassic localities of the Moscow syncline. Fragments of bryophyte leaves belong to the order *Protosphagnales* (M.S. Ignatov, 2015, pers. comm.). Most fragments of dispersed leaf cuticles of gymnosperms belong to pteridosperms of the family *Angaropeltaceae* of the genus *Aquestomia* Meyen. Less numerous are cuticles of peltasperm pteridosperms *Interpeltacutis conformis* Karasev, 2013. The presence of dispersed cuticles of the *Angaropeltaceae* and peltasperms is typical of both Late Permian and Early Triassic (Induan) deposits. Unlike frequently occurring cuticles, a large number of dispersed megaspores is not typical of Vyatka deposits. The recognized assemblages of megaspores at the top of the Vyatka Stage may indicate an increased diversity of lycopsids during that time; this trend probably continued during with the terminal Permian and Early Triassic of the Moscow syncline. This work was supported by the grant from the President of the Russian Federation for Young scientists (MK-2369.2014.4) and Russian Foundation for Basic Research (15-04-09067).