Abstract

Phytoliths are mostly formed by groundwater silica carried upwards in a plant's vascular system and consequently accumulated in different parts of the plant. After the plant's death, the phytoliths shaped in specific morphotypes are released into the soil. Phytolith assemblages found in the soil can therefore provide information on the previous vegetation cover. The use of phytoliths as a paleoecological tool is based on their high stability in a broad spectrum of environments, even in arid conditions which are usually not suitable for preservation of pollen grains and plant macro-remains.

Analysis of surface phytolith assemblages linked to the parallel study of modern vegetation is offering a good opportunity to refine our knowledge of paleoecosystems of NE Africa by evaluating the interpretation value of the fossil data. Modern phytolith assemblages are usually interpreted by using their phytolith ratio to estimate the density of tree cover, the aridity, and the proportion of C3 and C4 grasses (Barboni et al. 1999). Here we show a comparison of soil phytolith assemblages on a 400 km long climatic gradient reaching from semidesert to short grass savanna. And we also show local variability in phytolith assamblages at one of localities in comparision with grass reference collection.

This master thesis is partly based on preliminary results of a broader study of paleoenvironment in Central Sudan on a Mesolithic/Neolithic transition around 5000 BC based on a suggestion that in that time climatic conditions resembled those in the savanna. The investigation in broader perspective is in a close connection with ongoing prehistoric research of the Czech Institute of Egyptology at Jebel Sabaloka (Suková & Cílek 2012, Suková et al. 2014).

Key words: phytolith analysis, environmental gradients, recent vegetation, Africa