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# An Integrated approach to the study of Phytoliths and Thin Sections from Ground Stone Tools at Elephantine, Aswan, Egypt

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## Abstract

The analysis of phytoliths represents an approach not previously used in archaeological work in Egypt. It allows reconstructing vegetation, climate, ecology and nutrition at a site and complements the study of macroscopic plant remains.

The Realities of Life project is conducting research on find material from Middle Kingdom (c. 1800 BC) non-elite dwellings in the island city of Elephantine. For the first time, a combined study of grinding stones using methods of micromorphology, macrobotany, and phytolith analyses is conducted here.

By comparing phytoliths isolated from the pores and surface of the stones with plant particles in micromorphological thin sections, the actual use of the tools can be better understood. Findings on this have so far been based primarily on pictorial representations, which were under the strong influence of the elite classes of the Pharaonic Empire, and on find contexts of the objects. The pilot study presented here aims, among other things, to better understand the techniques of preparation and the plant components of the food of the inhabitants of the buildings studied. Combining the results of the phytolith study with the results of the study of plant macroremains reveals the full spectrum of historically used flora, from wild plants to domesticated species. Thus, the interaction between humans and the environment in the area of the first Nile cataract is further illuminated. From an archaeological point of view, a tool that has been found in big numbers but hardly considered as a research subject so far is comprehensively analyzed in its historical framework of use. Thus, in various respects, hitherto hardly or not at all used paths in archaeological research within Egypt are trodden.

**Keywords:** Middle Kingdom, Elephantine, Grinding stones, Phytoliths, Micromorphology

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