

## POLLEN, MACROREMAINS AND aDNA FROM FRUITS, FROM THE TAKARKORI ROCKSHELTER: AN INTEGRATED ARCHAEOBOTANICAL RESEARCH IN THE CENTRAL SAHARA

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The archaeobotanical samples from the Takarkori rockshelter (Fezzan, south-western Libya) were systematically collected in the 2003-2006 excavations\*. About 120 m<sup>2</sup> were excavated, revealing occupation layers which were radiocarbon dated to between ca. 4500 and 8900 uncal BP. The rockshelter had a 1.6 m thick archaeological deposit including structures, fireplaces and burials of women and children interred near the shelter wall. An impressive amount of mainly desiccated and well preserved plant macroremains was brought to light from Late Acacus and Pastoral layers. Known amounts of sediment (3 or 6 l) were dry sieved. Charcoals and seed/fruit concentrations visible to the naked eye were also collected. Material for pollen analysis was sampled from trenches including different amounts of organic matter. The main pollen zones were in agreement with the main cultural changes in the archaeological record. Moreover, the exceptionally well-preserved fruits of Poaceae encouraged analyses on aDNA at the Centre for Ancient DNA Research, University of Copenhagen. The extraction of aDNA was carried out on three samples of Poaceae fruit accumulations (spot n° 8136, 1423 and A2908). Two of the spot samples are dated to ca. 8000 uncal BP; one is dated to ca. 6000-5500 uncal BP. Notwithstanding the common doubts about the possibility of DNA preservation in arid and hot environments, the laboratory study was quite successful, with 5 out of 6 samples extracted and with 3 out of 5 correctly identified. DNA sequences (blind analyses) from *Echinochloa*, *Panicum* and *Sorghum* agree with the identifications made on the basis of morphological analysis. Further elaborations of the sequences obtained allowed a more detailed identification of the genus *Panicum* to be reached, which, when compared with the sequences currently available in the online database, seems to be *P. laetum*.

The integrated archaeobotanical studies on macroremains and pollen, carried out within a multidisciplinary research framework, provide information on the past human-environment relationships and on the Holocene landscape evolution of the area.

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