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

The archaeobotanical record from the Takarkori rockshelter (Fezzan, south-western Libya) was systematically collected in the 2003-2006 excavation seasons. The archaeological excavation was carried out over a surface of ca. 120 square metres and brought to light occupation layers radiocarbon dated between ca. 4500 and 8900 uncal. years bp. The rockshelter hosts 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 amount of sediment (3 or 6 l) were dry sieved. Charcoals and seeds/fruits concentrations visible to naked eye were also collected. Pollen was sampled from on-site trenches including different amount of organic matter: the best results were obtained from a sequence of thirty samples. The main pollen zones were in agreement with main cultural changes in the archaeological record.

Moreover, the exceptionally well-preserved fruits of Poaceae encouraged analyses on aDNA (done in the Centre for Ancient DNA Research of the University of Copenhagen). The extraction of ancient DNA was carried out on records from three samples of Poaceae fruits accumulation (spot n° 8136, 1423 and 2908). Two of the spot samples are dated to ca. 8000 uncal. years bp; one is dated to ca. 6000-5500 uncal. years bp. Notwithstanding the common doubts about the possibility of DNA preservation in arid and hot environments, the lab 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 to reach a more detailed identification of the genus Panicum, which compared with the sequences currently available in the online databases seems to be P. turgidum. The integrated archaeobotanical studies on macroremains and pollen, carried out within a multidisciplinary research framework, provided information on the past human-environment relationships and on the Holocene landscape evolution of the area.