



The diatom flora of Lake Lisan (Israel): a preliminary investigation

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The Eastern Mediterranean, and the southern Levant in particular, is a key region for palaeoclimatological and palaeoenvironmental research due to its highly complex topography and climatic variability. Our understanding of environmental variability and its possible drivers, and the interaction with migration processes of modern *Homo sapiens* from a source area in Africa to Europe, is still limited. This is partly because continuous sediment records of sufficient age are rare across the Mediterranean Basin. The deposits of the Dead Sea represent an ideal archive to investigate palaeoenvironmental conditions during human migration phases in the Last Glacial period (MIS 4-2).

Diatoms (single-celled siliceous algae, Bacillariophyceae) have well-recognised potential to generate high-quality palaeolimnological data, especially in closed-basin saline lakes, but they remain one of the least-exploited proxies in Eastern Mediterranean palaeoclimate research. Here, we present preliminary results of a low-resolution diatom study derived from analysis of sediment deposits of Lake Lisan, the last glacial precursor of the Dead Sea. Sediment cores were recovered during an ICDP campaign in 2010/2011 from the centre of the modern Dead Sea. 18 sediment samples were analysed to investigate (a) the preservation of diatom valves in various evaporitic deposits (b) possible shifts in diatom species composition of Lake Lisan during the Last Glacial period, and (c) if diatoms can be used as proxy indicator for lake-level and, thus, palaeoclimate reconstruction. We focus on a prominent lake-level high stand of Lake Lisan at around 28-22 ka BP, which resulted in the merging Lake Lisan and freshwater Lake Kinneret.

First results show that the diatom preservation is exceptionally good in evaporitic deposits of the sediment cores from Lake Lisan, which is contradictory to the available literature. In contrast to Holocene deposits from the Dead Sea, diatoms are abundant in all analysed samples from laminated deposits from Lake Lisan: the diatom flora is dominated by halophilous benthic diatoms, such as *Amphora* spp., *Halamphora* spp. and *Nitzschia* spp. In phases of lake-level high stands of Lake Lisan, the diatom flora shifts towards a more plankton-dominated freshwater flora containing *Aulacoseira* spp. and taxa from the *Cyclotella-ocellata*-species complex.