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Archaeobotany and ancient DNA analysis in mummified grape (*Vitis vinifera*) berries and seeds from Shahr-i Sokhta, Sistan-Baluchistan, Iran

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The preservation of seeds and fruits at Shahr-i Sokhta, especially for the food offerings buried in the tombs of the graveyard, can be compared with the mummification occurring in Egypt or others hot and dried region of the Near and Middle East. Such well preserved plant materials can contain macroscopic and molecular information, of a great importance to trace the agricultural history of the plants and to correctly identify the species.

Archaeobotanical and ancient DNA analysis on grape seeds and fruits from various pot contents of five tombs of Shahr-i Sokhta were performed. Seed samples were analyzed by Light Microscopy and Scanning Electron Microscopy for a morphological and biometrical characterization. In order to clarify the complex processes of domestication, archaeobotanical reconstruction was also attempted through DNA analysis. For this purpose berries were tested for microsatellite typing. Three different methods were compared to extract DNA from seeds and skin fragments; seeds were then analyzed using nuclear and chloroplast microsatellite (SSR) markers.

The paper will present the results of the archaeobotanical and biomolecular investigations in the framework of the archaeological investigation of the graveyard of Shahr-i Sokhta.