

PALEOENVIRONMENTAL CHANGES AND THE CULTURAL SEQUENCE OF THE ANCIENT THEODOSIUS HARBOUR (YENIKAPI-ISTANBUL):PALYNOLOGICAL EVIDENCES

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Abstract

As the capital of two world empires Istanbul is located at the crossroads of the waterway connecting the Mediterranean and the Black Sea. Project in due to build a tube tunnel under the sea between Asian and European parts of the city, an ancient Byzantium Harbor (Theodosius H. 4th century) was brought out at Yenikapi within the "historical peninsula". Geological and archaeological evidences in the sedimentary sequence exposed to daylight at the excavation site have revealed significant new data enabling for the first time to correlate the Holocene sea level change, paleoenvironmental changes and the cultural sequence of the region. This study include results of the polen analysis in the one of the sedimentary sequence which is collected from Marmaray excavation area.

Keywords: Paleoceanography, Marmara Sea

As the capital of two world empires Istanbul is located at the crossroads of the waterway connecting the Mediterranean and the Black Sea as well as the land route connecting Asia and Europe has contributed greatly to the cultural development and wealth of the city. It has been the setting for many civilizations since early times. During the preliminary construction works of a large scale Marmaray Tube Tunnel Project in due to build a tube tunnel under the sea between Asian and European parts of the city, an ancient Byzantium Harbor (Theodosius H. 4th century) was brought out at Yenikapi within the "historical peninsula". Geological and archaeological evidences in the sedimentary sequence exposed to daylight at the excavation site have revealed significant new data enabling for the first time to correlate the Holocene sea level change, paleoenvironmental changes and the cultural sequence of the region. This study include results of the polen analysis in the one of the sedimentary sequence which is collected from Marmaray excavation area. The sequence has a length of 270 cm. The litology of its consist of mainly blackish clay deposit (1) . It possibly formed in a small swamp. The interval between 220-222cm and 200 202 cm are yielded 7592-+44 BP and 7305-+47. 0.4-1 ml of sediments were sub-sampled from core 1 for palynological analysis. Sub-samples were treated with Na₄P₂O₇, HCl, HF, and HCl, then sieved through 125 and 10 µm screens. Numbers of microfossils per ml of wet sediment were calculated with the initial addition of *Lycopodium* tablets. Pollen residues were mounted in glycerol. Palynomorphs were identified at magnifications of 500X (routinely) and 1000X (special identification). All terrestrial and aquatic pollen grains were included in determining concentration. The pollen percentages are based on total pollen, excluding spores (2). The diagram of this sequence was divided into four local pollen assemblage zones.LPZ 4 (between 270-240 cm) was represented by low pollen values particularly *Sordaria* shows highest values (3). LPZ 3 (240-160 cm) , total pollen values increase (reaching 40%). Compositae and Chenopodiaceae appear in this zone and reaches highest values. *Liquidambar orientalis* L. exists on this zone. LPZ 2 (160-70 cm), pollen sum reaches its highest value in this zone. *Pterocarya* appears whereas *Juglans*, *Juniperus* and Chenopodiaceae disappear.. LPZ 1 (70-10 cm) , *Acer*, *Olea*, *Tilia* and *Betula* disappear upper part of this zone.

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