

RESTORATION OF AN ARCHAEOLOGICAL CERAMIC JAR FROM MAMLUK PERIOD (1250-1517 A.C.), AL-FUSTAT, EGYPT: AN ANALYTICAL STUDY

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Abstract

Ceramics were one of the oldest and most important industries that had evolved significantly all over the Islamic periods. Jar is a large ceramic vessel that was used in the Islamic period. It was excavated at Al Fustat, Egypt by the Faculty of Applied Arts, Helwan University and was added to the college museum in 1940. It was found that it dated back to the Mamluk Period (1250-1517 A.C.). The jar was in a very poor condition; it was fielded and was restored with unsuitable materials that turned it into several parts, especially at the base. In addition, it suffered from many deteriorations that include cracks, decay and crystallization of salts. Furthermore, many shards were broken from the body and some were missed. The aim of the current study was to study and restore the chemical and mineralogical composition of the clay body, the glaze and the crystallized salts. Different analytical methods were used including; X-ray diffraction (XRD) and Scanning electron microscopy (SEM) coupled with energy dispersive X-ray spectroscopy (EDS). Chromite (Cr^{VI}O_3) was used to obtain green glazes. Different restoration treatments were carried out on the jar, such as mechanical and chemical cleaning, consolidation, bonding and replacement processes. The results suggested that the salt was made of Halite mineral (Sodium chloride) and Calcite (CaCO_3), while the clay body of the jar was made of ferruginous, highly calcareous clay in an oxidizing atmosphere. Additionally, minerals such as silica, hematite, gehlenite and lime were identified.