

## **Analytical Study and Conservation Processes of a Wooden Coffin of Middel Kingdom, Ancient Egypt**

**Authors :** Mohamed Ahmed Abd El Kader

**Abstract :** This paper describes the conservation processes of an Ancient Egyptian wooden coffin dating back to the Middle Kingdom, ancient Egypt, using several scientific and analytical methods in order to provide a deeper understanding of the deterioration status and a greater awareness of how well preserved the object is. Visual observation and 2D Programs, as well as Optical Microscopy (OM), Environmental scanning Electron Microscopy (ESEM), X-ray Diffraction (XRD) and Fourier Transform Infrared Spectroscopy (FTIR) were used in our study. The identification of wood species and the composition of the pigments and previous restoration materials were made. The coffin was previously conserved and stored in improper conditions, which led to its further deterioration; the surface of the lid dust, which obscured the decorations as well as all necessary restoration work was promptly carried out as soon as the coffin was transferred from the display hall from the Egyptian Museum to the Wood Conservation Laboratory of the Grand Egyptian Museum-Conservation Center (GEM-CC). The analyses provided detailed information concerning the original materials and the materials added during the previous treatment interventions, which was considered when applying the conservation plan. Conservation procedures have been applied with high accuracy to conserve the coffin including cleaning, consolidation of fragile painted layers, and the wooden boards forming the sides of the coffin were reassembled in their original positions. The materials and methods that were applied were extremely effective in stability and reinforcement of the coffin without harmfulness to the original materials and the coffin was successfully conserved and ready to display in the Grand Egyptian Museum (GEM).

**Keywords :** coffin, middle kingdom, deterioration, 2d program

**Conference Title :** ICA 2024 : International Conference on Archaeology

**Conference Location :** New York, United States

**Conference Dates :** April 22-23, 2024