

## Analytical Study and Conservation Processes of Scribe Box from Old Kingdom

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**Abstract :** The scribe box under study dates back to the old kingdom. It was excavated by the Italian expedition in Qena (1935-1937). The box consists of 2 pieces, the lid and the body. The inner side of the lid is decorated with ancient Egyptian inscriptions written with a black pigment. The box was made using several panels assembled together by wooden dowels and secured with plant ropes. The entire box is covered with a red pigment. This study aims to use analytical techniques in order to identify and have deep understanding for the box components. Moreover, the authors were significantly interested in using infrared reflectance transmission imaging (RTI-IR) to improve the hidden inscriptions on the lid. The identification of wood species included in this study. The visual observation and assessment were done to understand the condition of this box. 3D dimensions and 2D programs were used to illustrate wood joints techniques. Optical microscopy (OM), X-ray diffraction (XRD), X-ray fluorescence portable (XRF) and Fourier Transform Infrared spectroscopy (FTIR) were used in this study in order to identify wood species, remains of insects bodies, red pigment, fibers plant and previous conservation adhesives, also RTI-IR technique was very effective to improve hidden inscriptions. The analysis results proved that wooden panels and dowels were identified as *Acacia nilotica*, wooden rail was *Salix sp.* the insects were identified as *Lasioderma serricorne* and *Gibbium psyllids*, the red pigment was Hematite, while the fiber plants were linen, previous adhesive was identified as cellulose nitrates. The historical study for the inscriptions proved that it's a Hieratic writings of a funerary Text. After its transportation from the Egyptian museum storage to the wood conservation laboratory of the Grand Egyptian museum -conservation center (GEM-CC), conservation techniques were applied with high accuracy in order to restore the object including cleaning , consolidating of friable pigments and writings, removal of previous adhesive and reassembly, finally the conservation process that were applied were extremely effective for this box which became ready for display or storage in the grand Egyptian museum.

**Keywords :** scribe box, hieratic, 3D program, *Acacia nilotica*, XRD, cellulose nitrate, conservation

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