

# Modern Scientific Approaches for Documentation, Examination and Analysis of Museum Artifacts

## With Application on Some of Archaeological Objects

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### Abstract

International museums in general, and the Cairo Egyptian Museum in particular, are rich in many antiquities, which represent the legacy of the past, which must be passed on to future generations. The museum is an educational and recreational institution, which works to serve society by collecting, preserving and presenting the antiquities in interesting and fun ways.

Scientific documentation is the first and most important steps to start with when restore or conserve any object. It is also considered a kind of preservation of the state of the artefact in its various stages before, during, and after restoration. Scientific examinations and analyzes using modern scientific equipments are also considered among the necessary operations that must be carried out before setting up a treatment and maintenance program for antiquities, as it plays a major role in identifying the materials that make up the antiquity and causes of damage and deterioration, and thus in choosing the appropriate materials for treatment.

This research aims to identify and present modern scientific methods for documenting, examining and analyzing museum objects in general, and archaeological textiles and carpets in particular, with practical applications for that on some artefacts.

Among the modern methods of documenting museum artefacts, documentation using software like Auto CAD & Adobe illustrator, X-ray Radiography, infrared IR, UV detections, and 3D laser scanner. The most important methods of examination and analysis of museum collections in general, textiles and carpets in particular, various types of microscopes such as optical, polarizing, (UV-Vis) and Scanning Electron (SEM) microscopy, X-ray fluorescence, Atomic absorption, Raman, Fiber Optics Reflectance Spectroscopy (FORS), infrared spectroscopy (FTIR) and High-performance liquid chromatography (HPLC), which is an accurate method for identifying the organic dyes in ancient manuscripts, textiles and carpets.

### Keywords:

Museum Objects, Scientific Investigation and Analysis, Documentation, Archaeological Textiles.