

Prototype Of Ag@ZnO Core shell for the sterilization of mural paintings	عنوان البحث باللغة الانجليزية
نموذج أولي للفضة واكسيد الزنك النانوي بتقنية الكور شيل Ag@ZnO لتعقيم اللوحات الجدارية	عنوان البحث باللغة العربية
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Abstract:

Cultural heritage sites often experience the unfavorable alteration of biodeterioration of mural paintings and wall inscriptions. Controlling or preventing biodegradation that may occur has been achieved through the use of various treatment methods, such as physical, chemical, and environmental control procedures. Regrettably, these treatments are often highly toxic to the health of conservators and visitors. Moreover, it causes pigmentation, is expensive, has low long-term results, and has poor long-term effectiveness. The use of Ag@ZnO core shell prototype in the field of cultural heritage was the first time in this research. The application was made to a painted wall inscription that dates back to the Middle Kingdom of ancient Egypt. A one-step chemical method was used to synthesize Ag@ZnO and it was examined using XRD, TEM, BET surface area, and Raman. These tests proved that the silver's core shell covered the zinc oxide's core and confirmed its purity. The painting on the wall was analyzed by SEN-EDX, Raman, and XRD analysis, and it was determined that the stone was limestone, the pigments were (Carbon for black pigment, Hematite for a red pigment, and Egyptian blue for blue pigment). These pigments and animal glue were combined to create the binding medium. The painted wall inscription was treated with Ag@ZnO treatments using a spray technique with a 5% concentration. The spectrophotometer was used to confirm that the color change has been below 5. This treatment method is non-hazardous, can be utilized both in vivo and in vitro, and does not necessitate the required environmental atmosphere or UV index.