

Environmental conditions Assessment and their impact on the Archaeological collections from the Al-Mafraq Museum in Jordan

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Abstract:

The present research paper discusses evaluating the environmental conditions (relative humidity- temperature) and their impact on the exhibited archaeological collections at Al-Mafraq Museum in North-eastern Jordan. The function of the museum focuses mainly on the conservation, exhibition, and preservation of collections. Also, it fulfills an educational, scientific, cultural, and touristic mission. Archaeological collections and found items are the main elements of the museum. Thus, they must be preserved and protected to fulfill their cultural mission. Al-Mafraq Museum contains many collections made of different organic and inorganic materials, such as wood, stone, pottery, ceramic, and metal that require different environmental conditions for exhibition, preservation, and storage. The present study aims to study, evaluate, and monitor the degrees of relative humidity and temperature inside Al-Mafraq Museum and their role in the deterioration of its collections. It was carried out using visual examination, measurement, and monitoring of relative humidity and temperature inside the museum over a year from November 2019 to October 2020 by Datalogger. Moreover, the portable digital optical microscope and X-Ray Diffraction Analysis were employed to examine some deterioration manifestations of the collections. The obtained results showed that the average degrees of relative humidity and temperature are high in most of the year. The highest value of relative humidity (78.6%) was reported in March, whereas the highest value of temperature (33.5°C) was in September, resulting in the deterioration of some exhibited and stored items. Ultimately, the relative humidity of most collections should range (45%- 55%) and should not increase or decrease by 5%, whereas temperature should not exceed (18°C). Thus, rapid intervention should be carried out to resolve this problem and keep these collections.

Key Words:

environmental conditions, relative humidity, analysis, Al-Mafraq museum, Jordan.