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| Using Potassium Ferrocyanide as a Salt Inhibitor for Mural Paintings: Challenge and Effectiveness | عنوان البحث باللغة الانجليزية |
| استخدام البوتاسيوم فيروسيانيد كمثبط للملح للرسوم الجدارية: التحدي والفعالية | عنوان البحث باللغة العربية |
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Abstract:

The objective of this study is to regulate the process of salt crystallization that commonly occurs on cultural heritage structures, stones, and mural paintings. Halite, the predominant salt present in Egypt, has caused damage to the historical building. Managing soluble salt is a global concern for conservators, especially when it is not possible to eliminate the source of salt. Salt inhibitors are chemical compounds that are now used to regulate and impede crystallization breakdown. The study's goals were to control the crystallization of salt, find out how well and whether potassium ferrocyanide works as a salt inhibitor, and look into the possibility of using potassium ferrocyanide for painting murals in an ancient Egyptian tomb. The painted layer was identified using XRD, FTIR, and SEM-EDX techniques. The data demonstrated the combination of Egyptian blue, hematite, goethite, and malachite with egg yolk as a binding medium. The characterization analysis was employed to create replicas, apply salt inhibitors, and evaluate their effects. Different concentrations were examined to determine the effectiveness and optimal dosage for the painted layer (0.01 M, 0.1 M, and 1 M). The results showed that potassium ferrocyanide can effectively control the process of sodium chloride (NaCl) crystallization at different concentrations. The first application of potassium ferrocyanide (1M) had noticeable effects on both Egyptian blue and malachite, resulting in a darkening effect. However, the application of other concentrations yielded an acceptable result. The results indicate that the potassium ferrocyanide is effective, there is no significant color change in low concentration, and it is a highly promising agent for controlling sodium chloride crystallization in mural paintings.