ملخص البحث رقم (٦)

نوع البحث	سنة النشر	مكان النشر	عنوان البحث	اسم الباحث
مشترك من رسالة محمد محمد عبد البر	2014	3rd International Conference on Corrosion Mitigation	**Evaluation of New Coating for Protection of Ornamental Cast Ironwork Exposed in Uncontrolled Environment**	Mai Mohamed Rifai Zainab Abdel Hamid Saleh Mohamed Saleh Mohamed M. Abdelbar

Abstract

Ironworks constitute a great part of the world culture heritage of metallic objects. Amongst these only a small part are on display in controlled environment. The is often exposed to uncontrolled atmospheres, high humidity and fluctuating temperatures and are usually heavily corroded. The aim of this study is to evaluate the efficiency of organic coating materials and corrosion inhibitors to protect ornamental cast ironwork from corrosion in uncontrolled environment using electrochemical techniques (potentiodynamic polarization Tafel lines eletrocchemical impedance (EIS) and one year of exposure inside the clock tower of Muhammed Ali's Mosque in Salah El-Din Citadel in Cairo (natural ageing). Grey cast iron coupons were prepared to simulate the composition and morphology of the historic cast iron staircase, and treated with different protection systems. For organic coatings have been studied; amethyl acrylate/ethyl methacrylate copolymer resin (paraloid™ B-72) dissolved in acetone, an ethylene copolymer (polgen® CE 9), permalac (N-Butyl acetate-14.0). The latter two have not been commonly used in conservation and restoration treatment. Two corrosion inhibitors have been studied, tannic acid and tannic acid mixed with phosphoric acid. The result indicated that the best protection of cast iron coupons was afforded by permalac, which protects cast iron from corrosion and the effect of UV. Finally, Permalac was applied on staircase inside the clock tower of Muhammed Ali's mosque.