Assessment of the Antifouling Effect of Exopolysaccharides Incorporated into Copper Oxide-Based Organic Paint

Rodrigo de Siqueira Melo^{1,*}, Simone Louise Delarue Cezar Brasil², Ladimir José de Carvalho², Aricelso Maia Limaverde Filho¹, Cid Pereira¹

¹ Universidade Federal do Rio de Janeiro, Campus UFRJ-Macaé Professor Aloísio Teixeira, Av. Aluizio da Silva Gomes, 50, Granja dos Cavaleiros, CEP 27930-560, Macaé, RJ, Brazil.

² Universidade Federal do Rio de Janeiro, Escola de Química - Departamento de Processos Inorgânicos, Av. Athos da Silveira Ramos, 149, Bloco E, Sl E-206 - Ilha do Fundão, CEP 21941-909, Rio de Janeiro, RJ, Brazil

*E-mail: rodrigosome@macae.ufrj.br

doi: 10.20064/2016.09.37

Received: 31 May 2016 / Accepted: 11 July 2016 / Published: 7 August 2016

The anticorrosive and antifouling performance of copper oxide-based organic coatings incorporated with microbial exopolysaccharides (EPS) was studied using electrochemical impedance spectroscopy (EIS) and scanning electron microscopy (SEM) after immersion in water produced by oil wells and *in natura* seawater. EPS incorporation in the paint did not influence the coating's final anticorrosive behavior. Moreover, no bacterial adhesion occurred during the immersion period in the presence of EPS, indicating the biopolymer as a promising biocide for the antifouling paint sector.

Keywords: EIS, microbiological corrosion, paint coatings, copper.

[FULL TEXT](#)

© 2016 The Authors. Published by ESG (www.electrochemsci.org). This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).