# Inhibition Efficiency of biopolymer against Carbon Steel Corrosion in simulated pores concrete solution

**Manoel MARTINS[1], Josealdo TONHOLO[2], Silvia B. B. UCHOA[2], Davi VIEIRA[1]**

[1] *IFAL, Brazil*
[2] *UFAL, Brazil*

This work presents the investigation of the effect of biopolymer on the inhibition of corrosion of carbon steel in a saturated solution of $Ca(OH)_2$ simulating the environment of the concrete. Corrosion studies were performed by potentiodynamic measurements, electrochemical impedance spectroscopy (EIS) and atomic force microscopy (AFM). It was observed that compounds showed the highest inhibitive potential on the carbon steel in alkaline medium with an average efficiency of about 65 percent. The results indicated that biopolymer acted as mixed-type inhibitor predominantly anodic and the inhibitory efficiency depends on its the concentration. Surface analysis by atomic force microscopy (AFM) indicated the formation of a protective film on the steel surface. The studied inhibitors follow Langmuir adsorption isotherm.
*Keywords:* Carbon steel; Corrosion; Biopolymer; Electrochemical techniques; concrete