6th INTERNATIONAL EURASIAN CONFERENCE ON
BIOLOGICAL AND CHEMICAL SCIENCES
11 - 13 October 2023
Ankara / Turkey
(EurasianBioChem 2023)
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ACCEPTANCE LETTER

12.09.2023

Dear **Gülşen AKGÜL, Serkan ÖZTÜRK,**

We are pleased to inform you that your paper titled **"Synthesis of Di-cationic Surfactant Containing Pyridinium Ion as Positively Charged Nitrogen Atom and Inhibition Efficiency Against Metal Oxidation in 1.0 M HCl" (Paper ID:420)** submitted to 6th International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2023) has been evaluated utilizing the double-blind peer review process and upon their recommendation your paper has been accepted for **Oral Presentation**.

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* This list is arranged in alphabetical order.

ORAL PRESENTATION

Synthesis of Di-cationic Surfactant Containing Pyridinium Ion as Positively Charged Nitrogen Atom and Inhibition Efficiency Against Metal Oxidation in 1.0 M HCl

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Abstract

The metal industry is a sector that has to fight corrosion. Corrosion, known as the oxidation of metal atoms, leads to the deterioration of the metal surface and the reduction of its metallic qualities. It is therefore appropriate to use inhibitors to protect the metal surface from corrosion. Among the effective inhibitors used to prevent metal corrosion, which occurs rapidly in acidic media, are cationic surfactants containing pyridinium ions. Based on this idea, two di-cationic surfactants containing one amide group, one ester group, two pyridinium ions and two positively charged nitrogen atoms thanks to pyridinium ions were synthesized to prevent metal corrosion in 1.0 M HCl solution. Its structure was confirmed by FT-IR spectroscopy. The ability of the compound to inhibit corrosion in acidic corrosive media was evaluated by weight loss technique. For this purpose, different concentrations of inhibitor solutions containing 1.0 M HCl were used and the effect of inhibitor concentration on corrosion was investigated by immersing metal samples in these solutions for 24 hours at room temperature. After the synthesis of di-cationic surfactants, it was revealed that they increased the corrosion resistance of low carbon steel in acidic environment as a result of tests by weight loss method. In these tests, corrosion inhibition efficiencies in the range of 74.61 - 87.95% were determined at different inhibitor concentrations and it was observed that the inhibition efficiency generally increased as the inhibitor concentration increased. Preventing the oxidation of iron atoms in mild steel depends on the adsorption of the inhibitor on the metal surface. As a result of this adsorption, the metal surface gains hydrophobic (water disliking) properties. As the best way to determine this hydrophobic property, the contact angle between the surface and the water dripped onto the metal surface was measured. In addition, surface images were taken with an optical microscope camera with 1600-fold magnification in order to compare the oxide layer images that were visible in the inhibitor-free environment, but not on the surfaces of the metal coupons immersed in the inhibitor (50 ppm) environment, and surface examinations were made by making the surface appearance differences more apparent.

Keywords: Synthesis, Metal corrosion, Corrosion inhibitor, Acidic environment, Contact angle