

## Drugs as corrosion inhibitors for the environment– A review

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### Abstract.

Recently, corrosion-inhibiting compounds have been discovered in a number of medications. In the past, corrosion inhibitors were used by researchers. Corrosion is a significant issue since it is difficult to eradicate completely. When metals interact with their surroundings, their chemical composition and physical properties change. Non-toxic antioxidants, such as organic and inorganic inhibitors, have been prohibited from use in corrosion prevention due to environmental concerns. Drugs can be utilized as corrosion inhibitors due to their minimal toxicity and impact on the environment. Corrosion inhibitors have been evaluated with a wide range of materials, including mild steel, carbon steel, and aluminum (melatonin, cephalosporin and tramadol among them). By developing on the surface of mild steel, an insoluble compound has been discovered to inhibit corrosion. Because mass and charge transfer are blocked by the adsorption of modified dapsone medicine on mild steel, corrosion is inhibited. The corrosion inhibition was investigated using EFM, linear polarization resistance, and electrochemical impedance spectroscopy. XRD, SEM, and AFM techniques were utilized to evaluate the Metal surface morphology before to and following drug addition. Researchers discovered that expired Dapsone can be used to make a new corrosion inhibitor. According to an EIS investigation, during the inhibition phase, a charge transfer mechanism is at action. As the inhibitor concentration grew, so did the corrosion rate. Researchers used weight loss and electrochemical technologies to study the effect of cephalosporin medications on carbon steel corrosion (CS). Density functional theory simulations revealed that cephalosporin is an excellent carbon steel corrosion inhibitor (DFT).

**Keywords.** Corrosion, Drugs, Inhibition efficiency, Corrosion inhibitors.

### Introduction

In recent years, there has been a rise in the use of pharmaceuticals as corrosion inhibitors. Environmentally friendly medications, according to Eddy and Odoemelam, have advantages over organic/inorganic inhibitors [1] [2]. Drugs, because to their low environmental impact, should be used instead of dangerous corrosion inhibitors. Most drugs, it is widely assumed, can be generated from natural sources and compete favorably with green corrosion inhibitors. This is due, in part, to the fact that: one can choose from a variety of pharmaceuticals to employ as corrosion inhibitors, and medications are regarded helpful to the environment and vital in biological interactions. [3] [4] [5] [6][7]. Antibacterial medications have lately been applied in the research of corrosion inhibitors for carbon steel and aluminum [8] [9][10]. Metals deteriorate due to chemical processes, which create corrosion. It is, in reality, a