

## Green Inhibitors for Corrosion Protection of Mild Steel - An Overview

T.Gowrani<sup>1</sup>, Ms. R. Sudha<sup>2</sup>

1,Assistant Professor, Department of Chemistry, Nallamuthu Gounder Mahalingam College, Pollachi 642001. [gowranivijay@gmail.com](mailto:gowranivijay@gmail.com), mobile: 9715397500

2,Assistant Professor, Department of Chemistry, Nallamuthu Gounder Mahalingam College, Pollachi 642001. [sudharajalingam@gmail.com](mailto:sudharajalingam@gmail.com), mobile - 8072684816

**ABSTRACT:**Corrosion is a subject of interest to interdisciplinary research communities, combining fields of chemistry, physics, materials science, metallurgy and chemical engineering. Corrosion is an unavoidable but a controllable process. The reduction in corrosion of metals has been managed by various methods including cathodic protection, process control, reduction of the metal impurity content, application of surface treatment techniques and incorporation of suitable alloys. However, the use of corrosion inhibitors has proven to be the easiest and cheapest method and are widely used in many industries to reduce the corrosion of metals in contact with a corrosive environment. Most corrosion inhibitors are synthetic organic and inorganic chemicals, expensive, hazardous to the environment. Due to the issues of toxicity of synthetic substances, there is an increasing interest in exploration and utilization of eco-friendly inhibitors, which are naturally occurring compounds known as green inhibitors, where most of their extracts containing functional groups along with hetero-atoms, assist in adsorption of these compounds on metal surfaces to form a barrier that protects the metallic surface. Many researchers have recently focused on corrosion prevention methods using green inhibitors for mild steel in acidic solutions to mimic industrial processes. This paper provides an overview of types of corrosion, corrosion process, and mainly recent work done on the application of natural plant extracts as corrosion inhibitors for mild steel in acidic environment by weight loss, potentiodynamic polarisation, techniques and also the mechanism of adsorption involved in inhibition property of plant extract against metal deterioration.

**Keywords-** Corrosion, Green inhibitor, Mild steel, Acidic environment.

### 1. INTRODUCTION

Usage of metals in day today activity is unavoidable because of their mechanical and electrical properties [1-4]. The strength of mild steel plays an important role in mechanical engineering, civil engineering and general purpose fabrication in oil and petrochemical industry, fertilizer industry etc.,. The choice of Mild Steel in above mentioned industries is because of its cost-effective, ductile, can be carburized, recyclable and low carbon content. Due to the antagonistic corrosion behavior, the metal structure, chemical constituents and composition gets damaged [5]. Electrochemical interaction of metals with the corrosive environment causes the corrosion. Sulfides, oxides, and others are generated through reactions between the metal surface and the corrosive medium [6-9]. Corrosion causes

T.Gowrani<sup>1</sup>, Department of Chemistry, Nallamuthu Gounder Mahalingam College, Pollachi, Tamilnadu, India [gowranivijay@gmail.com](mailto:gowranivijay@gmail.com)

Ms.R.Sudha<sup>2</sup>, Department of Chemistry, Nallamuthu Gounder Mahalingam College, Pollachi, Tamilnadu, India [sudharajalingam@gmail.com](mailto:sudharajalingam@gmail.com)