AQUEOUS EXTRACTS OF MANGO LEAF AS GREEN CORROSION INHIBITORS FOR SUS304 IN HCl AND H_2SO_4 SOLUTIONS

NURAIN ATIQAH BT AHMAD ZAPWAN

Final Year Project Reported Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Science (Hons.) Applied Chemistry
in the Faculty of Applied Sciences
Universiti Teknologi MARA

FEBRUARY 2024

This Final Year Project Report entitled **"Aqueous Extracts of Mango leaf as Green Inhibitors for SUS304 in HCl and H_2SO_4 solution"** was submitted by Nurain Atiqah Binti Ahmad Zapwan in partial fulfilment of the requirements for the Degree of Bachelor of Science (Hons.) Applied Chemistry, in the Faculty of Applied Sciences, and was approved by

_____

Dr. Solhan Binti Yahya
Supervisor
B. Sc. (Hons.) Applied Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
02600 Arau
Perlis

_____

Dr. Siti Nurlia Binti Ali
Project Coordinator
B. Sc. (Hons.) Applied Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
02600 Arau
Perlis

_____

Dr. Nur Nasulhah Binti Kasim
Head of Programme
B. Sc. (Hons.) Applied Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
02600 Arau
Perlis

Date: _____

ABSTRACT

AQUEOUS EXTRACTS OF MANGO LEAF AS GREEN CORROSION INHIBITORS FOR SUS304 IN HCl and H_2SO_4

Green corrosion inhibitors in acid mediums have advantages of wide source, low cost and environmental protection. This work aim to use an extract of *Mangifera indica* leaf as corrosion inhibitor for two types of acids. *Mangifera indica* leaf extract (MLE) was prepared through solvent extraction in 60:40 ethanol: water solvent system. The presence of active components with aromatic and oxygen-containing functional groups in the *Mangifera indica* leaf extract was demonstrated by FT-IR and UV-Vis analysis. The functional groups presence in the extract were (O-H, C=C, C=O, and C-H). Corrosion tests, weight loss measurements, and surface studies were used to investigate the inhibition of SUS304 corrosion in HCl and H_2SO_4 solutions using *Mangifera indica* leaf extract. The results showed that as inhibitor concentration increased, inhibition efficiency increased, reaching a maximum of 91% after 3 hours with 900 ppm inhibitor. The corrosion inhibitor efficiency was dependent on *Mangifera indica* leaf extract concentration and types of acid medium. This finding will give good implication to metal industries in utilizing green, environmentally friendly, less toxic and biodegradable corrosion inhibitors.

TABLE OF CONTENTS

CHAPTER 3 METHODOLOGY

CHAPTER 4 RESULTS AND DISCUSSION