

**ENHANCEMENT OF CORROSION INHIBITION  
EFFICIENCY OF SUS304 IN ACIDIC COCONUT HUSK  
EXTRACT IN THE PRESENCE OF HALIDE ION**

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HALIDE ION**

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**NUR IZZATUL AZWANI BINTI SHARIFFUDDIN**

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## ABSTRACT

### **ENHANCEMENT OF CORROSION INHIBITION EFFICIENCY OF SUS304 IN ACIDIC COCONUT HUSK EXTRACT IN THE PRESENCE OF HALIDE ION**

Corrosion is the consequence of unprotected stainless-steel exposure to a corrosive medium, resulting in uncontrolled chemical reactions that cause degradation. In this research, coconut husk as plant extract was investigated to inhibit corrosion of SUS304 in hydrochloric acid solution with the presence of halide ion by weight loss method. The coconut husk extract (CHE) contains phytochemical compounds such as lignin that can inhibit and reduce the corrosion effect. Moreover, the coconut husk possessed functional groups such as O-H, C-H, C=O, C=C and others that been identified via FTIR analysis. The results indicated that the inhibitory impact followed the sequence  $\text{Cl}^- < \text{Br}^- < \text{I}^-$ . Furthermore, 1.5 g/L CHE with  $\text{I}^-$  inhibitor exhibited excellent corrosion inhibition efficiency, 97.89%. Optical analysis showed the corrosive effect on stainless steel surface was reduced due to the use of halides in the corrosion inhibitors. This research proved that the addition of halide enhanced the CHE as an environmentally beneficial corrosion inhibitor which has the potential to be used in industrial applications.