



## ***Lawsonia Inermis* Performance as Corrosion Inhibitor for Mild Steel in Seawater**

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**Abstract :** Henna (*Lawsonia Inermis*) was investigated as a corrosion protector for mild steel through the immersion in seawater for 60 days. The volume of henna extract incorporated in the coating was varied to 5%, 10%, and 15%. Meanwhile, mild steel grade SS400 are prepared in the dimension of 25 mm x 25 mm x 3 mm and tensile samples with dimension specified by ASTM E8 were polished with 400, 800 and 1200 grit of abrasive paper. Immersion test was conducted in seawater for 60 days at room temperature. The inhibitor used was investigated by performing fourier transform infrared spectroscopy (FTIR) test while corrosion measurements were analyzed by weight loss method and electrochemical impedance spectroscopy (EIS). Tensile test was performed to analyse mechanical loss (tensile stress reduction) of the mild steel before and after immersion. The results revealed that henna has major constituents of lawsone which can retard the corrosion attack on metal surface. The presence of double bond carbon has caused the extract to exhibit a good corrosion resistance behaviour. There were three main functional groups found in henna extract which is phenolic group O-H, carboxylic acid C=O and also aromatic rings C=C. The effect on mechanical strength can only be seen after 30 days of immersion. After 60 days, corrosion protection of henna slows down the corrosion reaction on the metals.

**Keywords:** Corrosion inhibitor, Electrochemical Impedance Spectroscopy (EIS), Organic coating.