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Extraction and Isolation of Lawsone from Henna Plant and its Investigation as an Inhibitor of Corrosion of Mild Steel

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The destruction of metals due to corrosion has received immense global attention. The use of inhibitors is one of the most practical methods for protection against corrosion. The extracted lawsone, 2-hydroxy-1,4-napthoquinone, the main active ingredient of henna (Lawsonia inermis) was subjected to several studies. The inhibition action of lawsone on the corrosion of mild steel, iron-carbon alloy containing less than 0.25 percent carbon, in 1.0 M hydrochloric acid was studied using the weight-loss method. It was found that lawsone acts as a good corrosion inhibitor for mild steel in 1.0 M HCl media. The inhibition efficiency of all the samples used increased as the concentration of lawsone was increased, whereas within the temperature range of the experiment, 30-45°C the inhibition efficiency decreased with increasing temperature. The inhibition action of the extract is discussed in view of adsorption of lawsone molecules on the metal surface. It was found that this adsorption follows Langmuir adsorption isotherm in all tested systems.