



SDI Review Form 1.6

Journal Name:	Asian Journal of Applied Chemistry Research
Manuscript Number:	Ms_AJACR_42725
Title of the Manuscript:	Inhibition of Mild Steel Corrosion in Acidic Medium by Telfairia occidentalis Rind Extract
Type of the Article	Original Research Article

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)

PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	<p>Line No.80. Equation $I(\%) = \left(1 - \frac{W_1}{W_0}\right) \times 100$ where W0 and W1 are the weight losses of the mild steel coupons.</p> <p>But W0 and W1 are the corrosion rates. First determine the corrosion rate. Then using corrosion rates, determine the inhibition efficiency.</p> <p>{The corrosion rate (v) and the percentage of inhibition efficiency ($\eta_{\%}$) were calculated by the following equations.</p> $v = \frac{W}{S \cdot t} \quad \eta_{\%} = \frac{v_0 - v}{v_0} \times 100$ <p>where W is the weight loss (g) of specimen, S is the total area(cm²) of specimens, t is the time of treatment (4 h), v₀ and v are the corrosion rates (mm y⁻¹) of uninhibited and inhibited specimens respectively.}</p> <p>Line No. 157. The inhibitor can combine with freshly generated Fe²⁺ ions on the steel surface to form metal-inhibitor complexes: Complex formation involves chemical bonds. Authors not provided sufficient proof for this argument.</p> <p>Line No. 267. Physical adsorption of the extract onto mild steel surface has been proposed. If it is clear complex formation, the mechanism of adsorption may be chemical adsorption. Scrapping the adsorbed layer from the surface and by doing the FTIR analysis authors can get this information.</p> <p>Authors prepared the inhibitor solution in g/L. Since the extract contains more than one compounds authors can't make inhibitor solution in Molar. Then how the data provided in Table 3 and Table 4 expressed in mole? Clarify this argument.</p>	<p>Equations (1) and (2) used in calculating the inhibition efficiency and the corrosion rates, respectively, are correct. It is also possible to calculate the inhibition efficiency from the corrosion rates. However, the equation given by the reviewer for calculating the corrosion rate in mm y⁻¹ is not correct. The correct equation is V (mpy) = 534W/pAt, where W is the weight loss (g), p is the density of coupon(g/cm³), A is the area of coupon (cm²) and t is the time of treatment (hr). In short, the calculations in the manuscript are correct.</p> <p>More explanation has been included. However, it appears that the reviewer lacks knowledge of chemical bonding. There are different types of chemical bonds...</p> <p>The point of using FTIR analysis is noted. The extract, being in paste form, can be weighed to prepare the extract concentrations in g/L, which is mass concentration. The concentrations are not given in moles/L, which is molar concentration, since the molar mass of the extract is not known.</p>
Minor REVISION comments	<p>Line No: 47. Method of Chemical composition determination is not mentioned.</p> <p>Line No. 62. Extract concentrations of 0.5 g/L, 1.0 g/L, 1.5 g/L and 2.0 g/L respectively were prepared.</p> <p>Line No. 72. Previously weighed mild steel coupons were suspended with the aid of glass hooks and rods and immersed in 100 ml of 1 M H₂SO₄ solution (blank) and in 1 M H₂SO₄ solution containing 1.0 g/L – 2.0g/L <i>Telfairia occidentalis</i> rind extract (inhibitor), respectively, in open beakers. But 0.5 g/L is missing. In the Table 2, the data is provided.</p> <p>Line No. 111. The results of the phytochemical screening of ethanol <i>Telfairia occidentalis</i> rind extract revealed the presence of tannins, flavonoids, saponins, anthraquinones and phlobatannins. Authors should provide relevant proof of phytochemical screening(GC- MS, FTIR, etc. or Phytochemical Analysis result.)</p>	<p>The chemical composition of the mild steel were as-received from the factory. However, the composition can be determined easily and accurately using Positive Metal Identification (PMI) analyzer.</p> <p>The error is corrected.</p> <p>Results of phytochemical screening provided. Done.</p>
Optional/General comments	<p>Authors can try Electrochemical/potential analysis for corrosion analysis. Authors can use water soluble components of <i>Telfairia occidentalis</i> Rind Extract. Since the extract is taken in ethanol, comment on the solubility of extract in 1 M H₂SO₄.</p>	<p>The point of using electrochemical method is noted. Ethanol was the solvent used for the extraction. Afterwards, it was removed during the process of concentrating the extract to constant weight in a water bath. Ethanol no longer remained in the extract.</p>