

Review Form 1.6

Journal Name:	Asian Journal of Applied Chemistry Research
Manuscript Number:	Ms_AJACR_69723
Title of the Manuscript:	THERMODYNAMIC AND ADSORPTION STUDY OF THE CORROSION INHIBITION OF MILD STEEL BY <i>Aframomum corrima</i> EXTRACT IN 0.1M HYDROCHLORIC ACID SOLUTION
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://peerreviewcentral.com/page/manuscript-withdrawal-policy>)

Review Form 1.6

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	<ol style="list-style-type: none"> 1. There are grammatical errors here and there, though few. All the errors should be omitted. 2. Table 2 data shows some interesting trend. For every inhibitor concentration, the inhibition efficiencies vary alternatively with immersion time. What may be the reason for such trend? Is there any entry error by the authors due to over sight? or a suitable justification is needed for this interesting observation if the data presented is correct. This is also applicable to table 5 where efficiencies alternates with temperature. 3. What was the accuracy of the weighing balance used? What is the significant figure of measurement of weight using this balance? Mention these details in section 2, The significant figures of data presented in tables 1, 2 and 3 should align with the significant figure of the balance. I prefer representing the data in table 3 in exponential forms i.e. 8.3×10^{-5} instead of 0.000083 with corrected significant figures. 4. Do the figures 1-3 give any additional insights to the understanding of the data? If anything significant can be extracted by the authors from these figures, they should mention it explicitly. Otherwise, I suggest these figures to be deleted. The same is true for figures 4-6. 5. What was the logic behind selection of immersion time of 3 hours for studying the effect of temperature? The maximum efficiency was observed in most of the cases at 6 hours of immersion time. Study at this time would have been ideal. 6. In figure 7, the R2 value of each straight lines should be displayed in the figure. The straight lines are not showing good fit. Why? The same should be addressed for figure 8. 7. Why there is no consistent variation of E_a, ΔH and ΔS over different temperature ranges? 8. The linear fits of Temkins adsorption isotherms are not satisfactory. What is the reason for this? Has the experiment been repeated for two or three trials for getting reproducible results? 9. Why haven't the authors made SEM-EDX spectral studies? These are essential for confirming the adsorption of inhibitors on the surface. 10. Study of corrosion inhibition only through weight loss analysis gives a limited scope to the manuscript. Other approaches such electrochemical studies adds value to the paper. 	
Minor REVISION comments	<p>Abstract</p> <ol style="list-style-type: none"> 1. In the abstract appears a line 'for every temperature change, a decrease in the weight loss occurred as the inhibitor concentration increases'. Can the authors rephrase it so that the exact affect of temperature is understood? 2. The greatest %IE was observed at 303 K. How much? At what concentration of inhibitor? Details should be mentioned. 3. What is the final observation about the authors about nature of adsorption? Is it chemi- or physi-sorption? <p>Introduction</p> <ol style="list-style-type: none"> 1. 'When the rate of adsorption is higher than desorption the (ΔG_{ads} is negative, which indicates spontaneous adsorption. (ΔG_{ads} value less than 20kJ/mol indicates physical adsorption while -40kJ/mol and above indicates chemical adsorption^[15-22].' Use the parenthesis appropriately. Is it 20 or -20 kJ/mol? 2. 'The negative values of ΔG_{ads} and K_{ads} reflected the spontaneity of the adsorption process of EU leaf extract and the stability of the adsorbed layers on the mild steel 	

Review Form 1.6

	<p>surface in both acidic solutions ^[24]. Where both ΔG_{ads} and K_{ads} reported negative?</p> <p>3. Use the appropriate units for concentrations. 'm' has been used instead of 'M' in one instance.</p> <p>4. The inhibition efficiency range [min to max] of all the literature reported inhibitors should be mentioned.</p> <p>Section 2</p> <p>1. Mortar or Mortar?</p> <p>2. Are equations 5 and 5b correct? I do not think so.</p> <p>3. Where is the equation for El-awady's model?</p> <p>Section 3</p> <p>1. Write the correct chemical formulae of all the compounds.</p> <p>2. 'The inhibition efficiency of mild steel increased with increasing concentrations of inhibitors but decreased with time'. What do you mean by inhibition efficiency of mild steel? Are you measuring the inhibition efficiency of mild steel or the plant extract?</p> <p>3. 'At each immersion, there is an increase in steady decrease in corrosion rate.' Please elaborate the meaning of this statement.</p> <p>4. Mention the unit of weight loss and corrosion rates in the captions of tables 1 and 2. Also in tables 4 and 6.</p> <p>5. Table 2 needs attention. Is the caption correct? Are corrosion rates data included in this table as suggested by the table caption?</p> <p>6. 'As shown in Figure 11 and Table 7,' the figure number is 7 and not 11. Give revised numbering after eliminating figures 1-6.</p> <p>7. In section 2 Langmuir, Temkin, Freundlich and El-awady's adsorption isotherms are mentioned while in section 3 only two are discussed. Eliminate the two unnecessary equations and its detail in section 2.</p> <p>8. Figure 9 again is not needed. Remove it.</p>	
<p>Optional/General comments</p>	<p>NIL</p>	

PART 2:

	<p>Reviewer's comment</p>	<p>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)</p>
<p>Are there ethical issues in this manuscript?</p>	<p><u>(If yes, Kindly please write down the ethical issues here in details)</u></p>	

Reviewer Details:

<p>Name:</p>	<p>Suchetan P.A</p>
<p>Department, University & Country</p>	<p>Tumkur University, India</p>