



SDI Review Form 1.6

Journal Name:	<u>International Research Journal of Pure and Applied Chemistry</u>
Manuscript Number:	Ms_IRJPAC_37782
Title of the Manuscript:	Corrosion inhibition and Adsorption Characteristics of API 5L X-52 steel by an Antibiotic drug in HCl solution
Type of the Article	Original Research Article

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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:

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SDI 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	I will comment on the second point only. The present paper has its merits; however, some changes in its structure are needed and further rectification of the obtained results. In addition, you cannot prove that any inhibitor have good inhibition effect by two techniques: electrochemical test (EIS) and gravimetric. The other comments are given below 1) How many times were the experiments repeated? There is no accuracy or reproducibility given for these measurements. It should be. Is necessary added the standard deviation values. 2) In literature it is mentioned that the maximum concentration to have a good inhibitor is 50 ppm. This compound only shows effectiveness at very high concentrations. This economically as it influences, I do not know if it has to do with what the drug was tested as such. 3) In the gravimetric results the author mention The: dependency of the inhibition efficiency of the MOX on the immersion time in presence of certain concentration of the inhibitor shows an increased in the efficiency with increasing in the immersion, this behaviour is probably discussed on the basis that in the presence of high concentration of the inhibitor on the metal surface becomes saturated with inhibitor molecule and the equilibrium between the adsorption and desorption processes of the inhibitor molecule at the metal surface is attain. This is incorrect since it has to spend 20 days for it to reach a good protection against corrosion, probably what is protecting its metal surface is the interaction of the inhibitor with corrosion products. Applied to the industry does not make any sense. 4) The nyquist diagram should show the adjustment with the electric circuit shown for the different concentrations (the axes should be square). I think that in the presence of inhibitor there are two time constants, since the semicircle is depressed. Is necessary the authors added the bode plots. And discuss this part. 5) THE SECTION OF ADSORPTION PROCESS You mentioned in this section that you have calculated the surface coverage, Nowhere does it appear in which way it was calculated. I think you need the corrosion rate (icorr) in other to calculated the surface coverage. How did you calculate θ and from there to calculate the equilibrium constant of adsorption K_{ads} and the standard free	Ikpi et al., 2017 reported the effectiveness of the inhibitor (MOX) using potentiodynamic poalarization method and we have also used the computational method (Quantum chemical method) to confirmed the effectiveness of the inhibitor. 1. Triplicate of the experiments was run and the average values were recorded but the standard deviation values was not documented. 2. We agree with you at 50ppm and that have shown on the results. 3. It has been effected on the manuscript of the article. 4. Bode plot is not necessary on this paper. 5. K_{ads} and the standard free energy of adsorption ΔG°_{ads} values were well calculated and there are all correct, we have included the equation for the calculation of surface coverage in the manuscript. The SI unit for K_{ads} has corrected in the manuscript and the physical adsorption has been verified in the manuscript.



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	energy of adsorption ΔG°_{ads}? This is the one big reservation I have got about this paper. I think you made the following mistake: you did not respect the basic unit of SI, when you calculated K_{ads}; the equilibrium constant of adsorption should be changed into M^{-1} in order to agree with the basic unit of SI. It follows that, in both cases, the values of K_{ads} and ΔG°_{ads} are all wrong and the statement that the inhibitor molecule blocks the active sites by a physisorption process is unverified. Figure 7 should be changed, the concentration that is in ppm per M	
Minor REVISION comments		
Optional/General comments		