

The manuscript entitled “Adsorption and corrosion inhibitive properties of novel surfactants in the series of fatty acids based on palm oil on carbon steel in CO<sub>2</sub>-containing solution “.

**This title in revised MS needs writing word adjustment?**

After complete survey of the original manuscript and revised one together with the careful reading of both reviewer comments and the authors' responses the following comments and final decision can be given from the following serious points:

- 1- Returning to the references of the same authors given in this manuscript and careful reading of its contents (ref.15-19, and 33) it seems a repetitive work of no new idea(**no novelty**)and add nothing for the readers of IRJPAC; therefore I am strongly recommending its rejection.
- 2- The manuscript deals with “Some novel surfactants in the series of fatty acids were synthesized based on palm oil. The inhibition efficiency ( $\eta$  %) of these surfactants has been studied by both linear polarization corrosion rate and potentiodynamic polarization measurements in CO<sub>2</sub>-saturated brine at 50 °C. A significant decrease in the corrosion rate was observed in the presence of the investigated inhibitors. The percentage inhibition efficiency ( $\eta$ %) increases by increasing the inhibitor concentration. Potentiostatic polarization curves indicate that, the inhibitors under investigation act as mixed type. Tafel slopes are approximately constant and independent on the inhibitor concentration. The observed corrosion data indicate that, the inhibition of carbon steel corrosion is due to the adsorption of the inhibitor molecules on the surface, which follow Langmuir adsorption isotherm. The surface morphology of carbon steel samples in absence and presence of the inhibitor was examined using Energy dispersive X-ray fluorescence (EDRF)”, **mostly the same abstract, the same procedure, the same literature, the same tools, repetitive data, the same EDRF figs, the same conclusions and so on are given and confirm its rejection. I ask editor to return to the author's publications to help in getting the final decision.**
- 3- As electrochemistry the manuscript add nothing for physical chemistry readers. The author rationalize the inhibition of effect of their compounds is due to (sometimes monolayer chemisorption and another time by Langmuir multilayer adsorption) where the truth? See the sentences:
  - a- Page 5, “The high inhibition efficiency obtained in CO<sub>2</sub>- saturated solution in the presence of studied inhibitors by **all investigated methods** can be attributed to the formation of **protective film of iron carbonate** (FeCO<sub>3</sub>) as follows [25]”.
  - b- Page 5, “This indicates that the inhibitory action of the inhibitors against mild steel corrosion can be attributed to the adsorption of these molecules on the metal surface, limits the dissolution of mild steel, and the adsorption amounts of surfactants on mild steel increase with concentrations in the corrosive solutions”, **the authors cut this expression from previous paper and forget they are working on carbon steel not mild steel ????**
  - c- Page 11, The plots of  $C_{inh}/\theta$  vs  $C_{inh}$  yielded straight lines with near unit slopes for all the surfactants showing that the adsorption model of these surfactants follows the **Langmuir isotherm** with good correlation (as shown in Fig.5).
- 4- Some of their answers to previous reviewers are non- acceptable.
- 5- The manuscript suffers a lot of grammatical and typographical errors such as:
  - a- Page 1, 1<sup>st</sup> sentence of introduction adds nothing to the text.
  - b- Page 2, the sentence “All inhibitors solutions were prepared using a mixture from distilled water and alcohol in a different ratio”, **can authors tell us from where they can cover the required alcohol to dissolve their inhibitors during their use in industrial scale and tell us about the solubility of their organic oils in presence of salting out effects.**
  - c- Page 4, “Figure 1 shows **that**, the change in corrosion rate (CR) with time for carbon steel in CO<sub>2</sub>-saturated 1%NaCl solution containing different concentrations of inhibitors (a) II, (b) VI and (c) V at 50 °C”.
  - d- In page 5, the sentence “Variation of the corrosion rate for inhibitors II, **VI** and V at different concentrations”, **is that correct??? See the same error in Fig 1 b.**

- e- **Page 5, the sentence “Ogundele and White suggested that, iron carbonate,  $\text{FeCO}_3$ , may be important in the formation..”, where the references??**
- f- **Page 9, the sentence “Data in Table 4 shows.....”, is that correct?**  
**Page 14, in conclusion the sentence “1-Novel surfactants in the series of in the series of fatty acids...” is that correct?**
- 6- **Titles of some references are missed as requirements of the journal system??**
- 7- **Can authors tell how they keep pressure of  $\text{CO}_2$  at 0.9 bars in open beakers and in actual field on applications.**