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# INHIBITION EFFECT OF PHENACYL DIMETHYL SULFONIUM BROMIDE AND SOME OF ITS *P*- SUBSTITUTED DERVATIVES ON CORROSION OF MILD STEEL IN ACID SOLUTIONS

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**Abstract**

*The effect of six sulfonium bromides which have the formula (4-x-phenacyl dimethyl Sulfonium bromide, where x= H, $CH_3$, Cl , Br , $NO_2$ and $OCH_3$) on the corrosion of mild steel in 1.0M $H_2SO_4$ and 2.0M HCl was studied by chemical, electrochemical and scanning electron microscopy methods. Inhibition of corrosion by physical adsorption was found, also the $K_{ada}$, and $\Delta G_{ads}$ was calculated the negative values of $\Delta G_{ads}$., are characteristic feature of strong adsorption. A flat configuration through $\pi$ electrons of phenyl ring was suggested. The studied compounds were found to be a mixed type of inhibitors, $b_a$ and $b_c$ are recorded in absence and presence of studied compounds. The obtained data from impedance spectroscopy shows that the corrosion of mild steel in both acids was mainly controlled by charge transfer process in the presence of the studied compounds. The values of Inh.% calculated from all used methods were in good agreement.*