# POLAROGRAPHIC STUDIES ON SOME PARA SUBSTITUTED ACETOPHENONES

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Polarographic studies on several para substituted acetophenones in 50% aqueous isopropanol containing tetramethylammonium bromide supporting electrolyte, revealed that, in each case, the reduction was associated with a single two-electron irreversible wave. The half-wave potential ($E_{\frac{1}{2}}$) for the reduction of the carbonyl group was found to become progressively more negative for the methyl and methoxy substituents, whereas the reduction was found to become more feasible with chloro-, bromo- and N-acetyl substituents. Relative rates of reductions, calculated using the Tafel regions of the polarographic waves, were in agreement with the observed trend in the variation of $E_{\frac{1}{2}}$, and could be explained in terms of the electronic effects of the various substituents. A plot of $E_{\frac{1}{2}}$ against the substituent parameter ($\sigma_p$) was used to obtain information on the nature of the transition state in the reduction of acetophenones.