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
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The Influence of Transition Metal Ions on the Kinetics of Ascorbic Acid Oxidation by Methylene Blue in Strongly Acidic Media

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Abstract: The kinetics of the oxidation of L-ascorbic acid ($H_2 A$) by methylene blue was investigated in strongly acidic media over the temperature range 22-40 °C. The kinetic studies were carried out as a function of different variables like concentration, pH, ionic strength and temperature. The rate was found to be a linear relation with $[H_2 A]$, $[M.B.]$ and $[H^+]$. Ionic strength dependence formation indicated complex formation by monocationic and anionic species in solution. The reaction rate was greatly catalyzed by the presence of trace amounts of copper (II) ion. Possible mechanisms for the catalyzed and uncatalyzed reactions are proposed. Kinetic evidence for a specific catalytic effect by binding of alkali metal ions to oxidant is also reported. The derived rate equations are in good agreement with the experimental observations.

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