ABSTRACT

Oxidation of succinate was carried out by using potassium ferricyanide in aqueous solution. The succinate-ferricyanide reductase activity was determined at 420 nm with solution of 20 mM succinate and 1.0 mM ferricyanide. Integration method was used to ascertain the kinetic data and this data has been used to investigate the kinetics of succinate and potassium ferricyanide redox reaction. Effect of different concentrations of succinate $(2.0 \times 10^{-2}, 1.5 \times 10^{-2}, 1 \times 10^{-2}, 0.5 \times 10^{-2} \text{ mol L}^{-1})$ was checked on succinate oxidation while keeping the concentration of ferricyanide $(1.0 \times 10^{-3} \text{ mol L}^{-1})$ constant and the rate constants 0.2381, 0.1967, 0.1929, 0.1792 in s^{-1} at these concentrations respectively indicates that succinate oxidation speeds up as concentration of succinate increases from 0.5×10^{-2} to 2.0×10^{-2} mol L^{-1}. The present investigations were conducted to ascertain the influence of metal $(Zn^{+2}, Ni^{+2}, Cd^{+2}, Cu^{+2})$ ions on succinate oxidation using ferricyanide at $25 \pm 0.05^{\circ}\text{C}$ and 420 nm, and from all these investigations it was concluded that rate of redox reaction between succinate and potassium ferricyanide decreases with increasing metal ions $(Zn^{+2}, Ni^{+2}, Cd^{+2}, Cu^{+2})$ concentrations, ranging from 0.01g to 0.08 g per 100 ml of solution, which results that all of these heavy metal ions exert inhibitory effect on oxidation of succinate.