Oxidation of propane-1,3-diol (non-vicinal) by potassium permanganate in aqueous medium

Dayo Felix Latona
Osun State University, Nigeria

The oxidation of propane-1,3-diol by potassium permanganate in aqueous solution have been studied at λ_{max} 525 nm. The rate of the reaction has been found to increase with increase in [KMnO4] and [Propane-1,3-diol]. The reaction shows first order dependence both on [$KMnO_4$] and [Propane-1,3-diol] and independent on the ionic strength of the solution. The $\Delta H^{\#}$(kJ mol^{-1}), $\Delta S^{\#}$ (kJ$K^{-1}mol^{-1}$) and $\Delta G^{\#}$(kJ mol^{-1})were 24.98, -0.22 and 90.50 respectively. Negative activation of entropy revealed an ordered transition state for the reaction. Spectroscopic studies showed the product of thereaction to be 3-hydroxy-propanal.