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Kinetics and Mechanism of Oxidation of Co (II) Ternary Complexes Involving N-(2-Acetamido) Iminodiacete and Some Amino Acids Acid by Periodate

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Abstract : The kinetics of oxidation of the cobalt (II) complexes, [CoII(ADA)(Gly)(H2O)2]-, (ADA = N-(2-acetamido) iminodi-acetic acid and (Gly = Glycine) by periodate in aqueous acetate medium to cobalt (III) have been studied spectrophotometrically at 530 nm over the 30–50°C and a variety pH 4.57-5.25 range and I = 0.50 mol dm-3 under pseudo first order condition by taking large excess of oxidant [IO4-] and it obeys the following rate law: Rate=[CoII(ADA)(Gly)(H2O)2]-[H5IO6]{k4K6+(k5K7K5/[H+])}. Also, the kinetics of oxidation of the cobalt(II) complexes, [CoII(ADA)(Val)(H2O)2]- (ADA = N-(2-acetamido) iminodi-acetic acid and (Val = valine) by periodate in aqueous medium to cobalt (III) have been studied spectrophotometrically at 580 nm over the 30–50°C and a variety pH 4.3-5.12 range and I = 0.50 mol dm-3 under pseudo first order condition by taking large excess of oxidant [IO4-] and it obeys the following rate law: Rate=[CoII(ADA)(Val)(H2O)2]-[H5IO6]{k4K6+(k5K7K5/[H+])}

Keywords : periodate, oxidation, cobalt (II), glycine, valine acid, n-(2-acetamido imino-diacetato)
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