Thermodynamics of adduct formation between copper (II) salicylaldimine chelates and nitrogen bases

Abstract

The equilibrium constants, free enefrgies, enthalpies and entropies for 1:1 adduct formation of Cu (II) with series of nitrogen bases have been measured spectroscopically in benzen, cyclohexane, and dichloromethane. the equilibrium constants for the adduct formation were found higher for Cu(II) salicylidenephenyldiimine and the measured values span the range from 1.11 and 11.33 l per mol. The order of the equilibrium constants were determined by the donor strength of the base. in a series of pyridines the stability of the adducts increases in the order: 3-aldehydopyridine < 2-methylpyridine < pyridine < 4-methylpyridine. Variation of the stability of the adducts due to changing the bases were attributed in part to the change in donor power and in part to steric effects. The solvents were ranked as follows by this constant: benzene > cyclohexane > dichloromethane.