

Ternary copper(II) complexes with diethylenetriamine and α - (or β -) alaninehydroxamic acids in water solution.

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Artykuł

Streszczenie

Stabilities of the mixed-ligand complexes of Cu^{2+} ion with diethylenetriamine [bis(2-aminoethyl) amine, dien] as a primary ligand and α -alaninehydroxamic acid [2-amino-N-hydroxypropanamid, α -Alaha] or β -alaninehydroxamic acid [3-amino-N-hydroxypropanamid, β -Alaha] as a secondary ligand L and their absorption and EPR spectra at various pH values are reported. The visible spectra exhibit a characteristic red shift and a shoulder at lower energies indicating a five-coordinate structure of the formed complexes. The change of the EPR spectral parameters as a function of pH reflects two modes of an equatorial-axial chelation by aminohydroxamic acid ligand L in $[\text{Cu}(\text{dien})(\text{HL})]^{2+}$ and $[\text{Cu}(\text{dien})(\text{L})]^+$ species, while the diethylenetriamine nitrogens are coordinated at three equatorial positions in each case. α -Alaha is a more effective chelating ligand than β -Alaha in the Cu^{2+} -dien-L ternary system. This is reflected in the much higher basicity-adjusted stability constants, $\log K_{\text{Cu}(\text{dien})(\alpha\text{-Alaha})(\beta\text{-Alaha})} \sum pK^H$.

Słowa kluczowe

copper(II) complexes, mixed-ligands complexes, five-coordinate, aminohydroxamic acids, diethylenetriamine, e.s.r. spectra, vis spectra

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