Stabilities and coordination modes of methionine in copper(II) mixed-ligand complexes with ethylenediamine, diethylenetriamine or N, N, N', N'', N''-pentamethyldiethylenetriamine in aqueous solution.

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Streszczenie

Solution equilibrium studies on the Cu(II)–polyamine–methionine ternary systems (polyamine: ethylenediamine (en), diethylenetriamine (dien), N,N,N′,N″,N″-pentamethyldiethylenetriamine (Me_5dien)) have been performed by pH-potentiometry, UV–Vis spectrophotometry and EPR methods. The obtained results suggest the formation of the mixed-ligand complexes with $[Cu(A)(Met)]^+$ stoichiometry in all studied systems. Our spectroscopic results indicate the tetragonal geometry for $[Cu(en)(Met)]^+$, the geometry slightly deviated from square pyramidal for $[Cu(dien)(Met)]^+$ and strongly deviated from square pyramidal towards trigonal bipyramidal for the $[Cu(Me_5dien)(Met)]^+$ species. The coordination modes in these mixed-ligand complexes are discussed.

Słowa kluczowe

Copper(II) complexes, Mixed-ligand complexes, Amino acids, EPR, Vis spectroscopy, Potentiometry, Equilibria, Stability constants, Polyamines, Five-coordinate complexes

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