

The role of histidine residue in coordination abilities of peptides with multi histidine sequence towards nickel(II) ions.

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Streszczenie

Previous studies on the histidine rich peptides- Cu^{2+} systems have shown very efficient coordination abilities and high thermodynamic stability of the complexes formed. In this work the ability of histidine-rich peptides with Ni^{2+} ions are presented. The coordination abilities of the series of the N-protected (Ac-His-Arg-His-Gly-His-Gly, Ac-His-Gly-His-Arg-His-Gly, Ac-Gly-His-His-Arg-His-Gly, Ac-His-His-Gly-His-Arg-Gly) and unprotected peptides (His-Arg-His-Gly-His-Gly, His-Gly-His-Arg-His-Gly, Gly-His-His-Arg-His-Gly, and His-His-Gly-His-Arg-Gly) towards Ni^{2+} ions were studied by spectroscopic (UV/VIS, CD) and potentiometric methods. For the N-protected peptides the dominant complex species with $\{3\text{N}_{\text{im}}\}$ in physiological pH range has been determined, while for the unprotected peptides the coordination of the first amide nitrogen takes place. Moreover, for the Ni^{2+} -peptide systems the complexes with two geometries were determined: the paramagnetic octahedral species within the acidic pH range and the diamagnetic square-planar species at pH exceeding 7.

Słowa kluczowe

Complexes, Coordination chemistry, Histidine, Nickel, Peptides