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Specific binding of Zn^{2+}, Cd^{2+} and Ni^{2+}ions by a cyclic four-cysteinyl peptide.

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Streszczenie

The metal binding abilities of the GCASCDNCRACKK cyclic peptide towards Zn^{2+}, Cd^{2+} and Ni^{2+} ions were studied by potentiometric and spectroscopic methods. The aim of this work was to understand the impact of cyclization on the peptide binding mode and the stability of the formed metal complexes when compared to its linear Ac-GCASCDNCRACKK-NH_2 analogue. The obtained results clearly indicate that in the case of Cd^{2+} and Ni^{2+} complexes, the cyclization of the coordinating peptide distinctly increases the complex stability in the whole pH range studied. Surprisingly, different results were obtained for Zn^{2+} complexes. The peptide cyclization seems to prevent the binding of all four available cysteinyl residues to the Zn^{2+} ion, resulting in the reduced stability of the respective complexes.

Adres publiczny

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