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Mononuclear copper(II) complexes of alloferons 1 and 2: a combined potentiometric and spectroscopic studies.

Autorzy

Teresa Kowalik-Jankowska

Łukasz Biega

Mariola Kuczer

Danuta Konopińska

Rok wydania

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Streszczenie

Mononuclear copper(II) complexes of the alloferon 1 His-Gly-Val-Ser-Gly-His-Gly-Gln-His-Gly-Val-His-Gly, alloferon 2 Gly-Val-Ser-Gly-His-Gly-Gln-His-Gly-Val-His-Gly, Ac-alloferon 1 Ac-His-Gly-Val-Ser-Gly-His-Gly-Gln-His-Gly-Val-His-Gly and Ac-alloferon 2 Ac-Gly-Val-Ser-Gly-His-Gly-Gln-His-Gly-Val-His-Gly have been studied by potentiometric, UV-vis, CD and EPR spectroscopic methods. The potentiometric and spectroscopic data shows that acetylation of the amino terminal group induces significant changes in the coordination properties of the Ac-alloferons 1 and 2 compared to the alloferons 1 and 2, respectively. The presence of four (Ac-alloferon 1) or three (Ac-alloferon 2) histidyl residues provides a high possibility for the formation of macrochelates via the exclusive binding of imidazole-N donor atoms. The macrochelation suppresses, but cannot preclude the deprotonation and metal ion coordination of amide functions and the CuH(-3)L species with [N(Im), 3N(-)] bonding mode at pH above 8 are formed. The N-terminal amino group of the alloferons 1 and 2 takes part in the coordination of the metal ion and the 4N complex with [NH(2), 3N(Im)] coordination mode dominates at physiological pH 7.4 for alloferon 1 and the 3N [NH(2), CO, 2N(Im)] binding mode for alloferon 2. However, at higher pH values sequential amide nitrogens are deprotonated and coordinated to copper(II) ions.

Słowa kluczowe

Alloferon 1, Alloferon 2, Copper(II) complexes, Stability constants, Spectroscopic studies

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