



Copper(II) complexes of several monophosphono dipeptides: the role of phosphonic oxygen and thioether sulfur in complex stabilization.

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Rok wydania

2004

Czasopismo

Polyhedron

Numer woluminu

23

Strony

1939-1946

DOI

10.1016/j.poly.2004.04.027

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

Potentiometric, UV–Vis, CD and EPR studies were performed on the copper(II) complexes of oxygen and nitrogen donor ligands (monophosphono dipeptides: 1-(*N*-l-leucylamino)methylphosphonic acid – Leu–Gly(P), 1-(*N*-l-leucylamino)valylphosphonic acid – Leu–Val(P)) and a thioether sulfur donor ligands (monophosphono dipeptides: 1-*N*-(glycylamino)-2-(*S*-benzylthio)ethanephosphonic acid – Gly–(Bz)Cys(P), d(+) and Gly–(Bz)Cys(P), d(–)). Complex formation reaction between copper(II) and dipeptides were very similar to each other, $[MLH_{-1}]^-$ being the major species in wide pH region. CD spectroscopy, however, was a very sensitive tool for the elucidation of small structural differences among peptide complexes, including the weak interaction in an axial and equatorial position of thioether residues. The complexes of the thioether donors have higher thermodynamic stability constants than the other ones. The coordination in $[CuLH_{-1}]^-$, the major species in the studied systems, is realized by the $\{PO_3^{2-}, NH_2, N^-\}$ donor set but both ligands Gly–(Bz)Cys(P) are more effective chelating agents than other ones. In this case both benzyl ring and thioether group can stabilize this complex by competition with the phosphonic oxygen towards copper ion coordination in an axial position.

Słowa kluczowe

Copper(II) complexes, Thioether ligands, Stability constants, Monophosphono dipeptides, Potentiometry, Vis, CD, EPR spectroscopy

Adres publiczny

<https://doi.org/10.1016/j.poly.2004.04.027>

Strona internetowa wydawcy

<http://www.elsevier.com>

Plik został wygenerowany dnia 2026-10-08 14:57:23

Adres w repozytorium <https://old.chem.uni.wroc.pl/pl/repozytorium/3jxOHRw>.