Bisphosphonate chelating agents: complexation of Fe(III) and Al(III) by 1-phenyl-1-hydroxymethylene bisphosphonate and its analoques.

Autorzy

Elżbieta Gumienna-Kontecka

R. Silvagni

Radosław Lipiński

Marc Lecouvey

C. Marincola

Guido Crisponi

Valeria Marina Nurchi

Y. Leroux

Henryk Kozłowski

Rok wydania

2002

Czasopismo

Inorganica Chimica Acta

Numer woluminu

339

Strony

111-118

DOI

10.1016/S0020-1693(02)00918-0

Kolekcja

Naukowa

Język

Angielski

Streszczenie

Bisphosphonate ligands were found to be very efficient chelating agents for both Al(III) and Fe(III) ions. Potentiometric and spectroscopic data allow evaluation of the coordination equilibria in the solutions containing 1-phenyl-1-hydroxymethylene bisphosphonate and its three analogues with Al(III) and Fe(III) ions. At pH below 4 the bis-complexes are formed, while above pH 4 the major species are equimolar, monomeric for Al(III) or dimeric for Fe(III) complexes. The large steric hindrance and high electric charge are the major factors influencing the complex stoichiometry. The formation of the dimeric Fe(III) with μ-oxo or μ-hydroxo bridges were supported by measurements of the magnetic moments using Evans' method. The stabilities of the complexes formed are higher than those found for deferiprone, L1, used in clinics as a chelating agent.Bisphosphonate ligands were found to be very efficient chelating agents for both Al(III) and Fe(III) ions. Potentiometric and spectroscopic data allow evaluation of the coordination equilibria in the solutions containing 1-phenyl-1-hydroxymethylene bisphosphonate and its three analogues with Al(III) and Fe(III) ions. The stabilities of the complexes formed are higher than those found for deferiprone, L1, used in clinics as a chelating agent.

Słowa kluczowe

Al(III) complexes, Fe(III) complexes, Bisphosphonates, Potentiometry, Spectrophotometry, NMR

Adres publiczny

https://doi.org/10.1016/S0020-1693(02)00918-0

Strona internetowa wydawcy

http://www.elsevier.com

Typ publikacji

Artykuł