Uniwersytet Wrocławski

Repozytorium

Plik pochodzi z repozytorium Wydziału Chemii Uniwersytetu Wrocławskiego

Magnetic studies of lanthanide complexes with amino acids.

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2008

Czasopismo

Journal of Alloys and Compounds

Numer woluminu

451

Strony

270-275

DOI

10.1016/j.jallcom.2007.04.184

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

Lanthanide complexes with amino acids and related biologically relevant ligands have been proposed for many uses, which include the applications in anticancer treatments and as catalysts in the DNA and RNA selective cleavage. The structural and physical characteristics of this type of compounds are important in different kind of applications.The studies of magnetic properties of two series of structurally characterised lanthanide compounds with amino acids are reported. The temperature dependence of the magnetic susceptibility down to 2 K and also the field dependence of the magnetization up to 5 T have been investigated. The first series comprises Pr(III) complexes with different amino acids: glycine, l-alanine, dl-alanine, l-proline and l-glutamic acid. The influence of the topology and of the type of the bridging ligands, the chirality effect and also the dimensionality of created structures on the nature and magnitude of the Ln–Ln magnetic interaction are analysed in light of available magnetostructural data. The second series includes isostructural dimeric lanthanide compounds with l-alanine: $[Ln(l\text{-}alanine)_2(H_2O)_4]_2(ClO_4)_6$, where Ln stands for trivalent rare earth elements: Ce, Pr, Nd, Eu, Gd, Dy and also Yb. The magnetic investigations allow us to compare the magnetic properties as the lanthanide element varies along the series in structurally related compounds.

Słowa kluczowe

Amino acids, Lanthanide ions, Magnetic properties

Adres publiczny

https://doi.org/10.1016/j.jallcom.2007.04.184

Strona internetowa wydawcy

http://www.elsevier.com

Plik został wygenerowany dnia 2026-11-07 18:10:08

Adres w repozytorium https://old.chem.uni.wroc.pl/pl/repozytorium/dzBJsTa.