

New lanthanide(III) complexes of chiral nonadendate macrocyclic amine derived from (1*R*,2*R*)-1,2-diaminocyclohexane and 2,6-diformal-4-methylphenol.

Autorzy

Marta Paluch

Jerzy Lisowski

Rok wydania

2008

Czasopismo

Journal of Alloys and
Compounds

Numer woluminu

451

Strony

443-447

DOI

10.1016/j.jallcom.2007.04.151

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

The series of complexes $[\text{LnH}_4\text{L}(\text{NO}_3)_2](\text{NO}_3)_2 \cdot n\text{H}_2\text{O}$ ($\text{Ln} = \text{La}, \text{Ce}, \text{Pr}, \text{Nd}, \text{Gd}, \text{Tb}, \text{Ho}, \text{Er}, \text{Tm}$) of the positively charged protonated form of a chiral macrocyclic amine H_4L^+ , derived from the 3 + 3 condensation product of (1*R*,2*R*)-1,2-diaminocyclohexane and 2,6-diformyl-4-methylphenol, have been synthesized. The series of complexes $\text{Na}_x[\text{LnL}](\text{X})_y(\text{OH})_{x-y} \cdot n(\text{solv})$ ($\text{X} = \text{NO}_3^-$ or Cl^- , and $\text{Ln} = \text{La}, \text{Ce}, \text{Pr}, \text{Nd}, \text{Sm}, \text{Eu}, \text{Gd}, \text{Tb}, \text{Dy}, \text{Ho}, \text{Er}, \text{Tm}, \text{Yb}, \text{Lu}$) of the deprotonated anionic form of the ligand, L^{3-} , have also been synthesised. The complexes have been characterised by elemental analyses, ^1H NMR and ESI MS spectra. The X-ray crystal structures of the $[\text{LaH}_4\text{L}(\text{NO}_3)_2](\text{NO}_3)_2 \cdot 5\text{CH}_3\text{OH}$ and $[\text{GdH}_4\text{L}(\text{NO}_3)_2](\text{NO}_3)_2 \cdot 5\text{CH}_3\text{OH}$ complexes have been determined. The two complexes are isostructural, and the protonated macrocycle acts as pentadentate ligand. The $\text{Ln}(\text{III})$ ion is bound to three phenolate oxygen atoms and two amine nitrogen atoms of the macrocyclic ligand and its coordination sphere is completed by the two axial bidendate nitrate anions.

Słowa kluczowe

Lanthanide complexes, Chiral complexes, Macrocycles, Crystal structure

Adres publiczny

<https://doi.org/10.1016/j.jallcom.2007.04.151>

Strona internetowa wydawcy

<http://www.elsevier.com>