Axial ligand exchange in chiral macrocyclic ytterbium(III) complexes.

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Streszczenie

We investigate the role of axial ligands on the near-IR-optical and paramagnetic NMR spectra of the complex [Yb**L**]$^{+3}$ where **L** is the stereodefined enantiopure chiral macrocycle (**L** = hexaazapentacyclo[25.3.1.1^{12,24}.0^{4,9}.0^{19,24}]dotriaconta-1(31),2,10,12,14,16(32),17,25,27,29-decaene). The conformation in solution of the lanthanide complex is characterized by analyzing the pseudocontact ^{1}H NMR shifts and is consistent with X-ray data of single crystal of analogue systems. The macrocycle is confined within a thin equatorial disk, leaving the cation open to at least two axial sites, on the opposite hemispheres. We recorded, assigned, and analyzed the ^{1}H NMR spectra of several species upon changing the anion in solution, calculating the magnetic susceptibility anisotropy tensor for each. Near-IR circular dichroism is used to investigate the solution equilibria involving the competing ligands and to derive a spectroscopic series for Yb.

Słowa kluczowe

Anions, Ions, Ligands, Macrocycles, Nuclear magnetic resonance spectroscopy

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