Solid state structures and solution behaviour of tetranuclear lanthanide(III) carbonate-bridged coordination compounds of chiral 3 + 3 amine macrocycle

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The linking of two dinuclear macrocyclic units of large triphenolic hexaazamine by two carbonate anions results in the formation of dimeric tetranuclear Sm(III), Eu(III) and Gd(III) complexes. These complexes were initially obtained serendipitously by fixation of atmospheric carbon dioxide and subsequently obtained in a rational way by the application of carbonate salts. The X-ray crystal structures of these isomorphic complexes show highly folded conformation of the macrocycle. This type of conformation is also confirmed by 2D NMR spectra of the Sm(III) complex. The ESI-MS and NMR spectra reveal also that these carbonate complexes exist in solution in two different forms that are in a concentration-dependent dynamic equilibrium.

Adres publiczny

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