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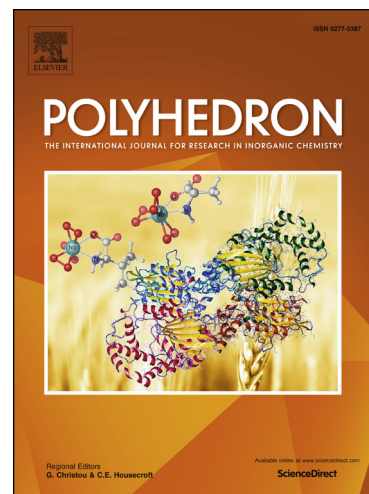
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Conversions of monomeric, dimeric and tetrameric lanthanum and samarium citrates with ethylenediaminetetraacetates in aqueous solutions

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Abstract

Our continued research on lanthanide citrate with ethylenediaminetetraacetate results in an isolation of a monomeric samarium complex $K_4[Sm(Hcit)(EDTA)] \cdot 10H_2O$ (**1**) (H_4cit = citric acid and H_4EDTA = ethylenediaminetetracetic acid) from the reaction of lanthanide ethylenediaminetetraacetate trihydrates with citric acid at pH ~ 6.5, where the three coordinated water molecules of $K[Sm(EDTA)(H_2O)_3] \cdot 5H_2O$ (**4**) were substituted by the α -hydroxy, α -carboxy and β -carboxy groups of citrate. When involving lanthanum element, the reaction of lanthanum ethylenediaminetetraacetate trihydrates with dimeric lanthanum complex $K_4(NH_4)_4[La_2(Hcit)_2(EDTA)_2] \cdot 17H_2O$ (**2**) gives a novel tetrameric lanthanum citrate with ethylenediaminetetraacetate $K_2(NH_4)_8[[La(EDTA)(H_2O)_2]_2[La_2(Hcit)_2(EDTA)_2]] \cdot 22H_2O$ (**3**). The main structural feature of **2** consists of a dinuclear unit deca-coordinated by citrate and EDTA, while tetramer **3** is a dinuclear unit bridged with two lanthanum ethylenediaminetetraacetates through pendent β -carboxy groups. It is interesting to note that **1** ~ **3** contain strong intramolecular hydrogen bonds between α -hydroxy and β -carboxy groups with

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