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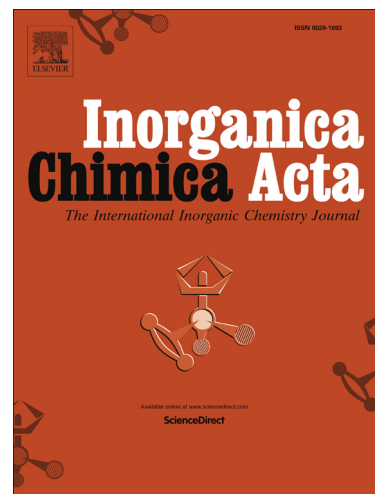
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Novel *di*-substituted hexaaza-macrocyclic ligands bearing hydrazine and/or indole arms: synthesis, sensor properties and catalytic activity

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Abstract

Novel *trans*-disubstituted hexaaza-macrocyclic ligands **L**¹, **L**² and **L**³ were successfully prepared by the alkylation of the *trans* secondary amines presented in **L** with ethyl acetate, acetohydrazide and indole groups, respectively. The coordination properties of compounds **L**² and **L**³ towards different transition, post-transition and lanthanide metal ions were explored. Their responses towards some of these cations were also evaluated in solution by UV-vis absorption and emission spectroscopy. Crystals of [Na**L**¹]Br·2H₂O suitable for X-ray diffraction were obtained by slow evaporation of an acetonitrile solution of compound **L**¹, showing an *anti* conformation between the methyl groups and the pendants arms in *trans*. The catalytic activity of **L**² and their nitrate complexes (Co²⁺, Ni²⁺, Cu²⁺, Zn²⁺) towards the decomposition of hydrogen peroxide (catalase activity) was also studied.

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