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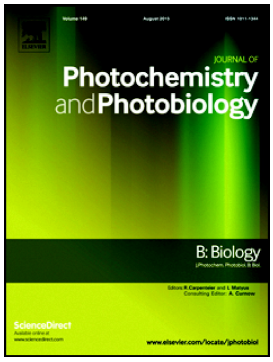

pH Dependent synthesis of two isomeric dinuclear Cerium(II) complexes: Structures, DNA interactions, cytotoxic activity and apoptotic study

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pH dependent synthesis of two isomeric dinuclear cerium(II) complexes: structures, DNA interactions, cytotoxic activity and apoptotic study

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Abstract

Two isomeric dinuclear Cerium(II) complexes 1 and 2, formulated as $Ce_2(phen)_2(NO_3)_2(L)_4$ [L=phenylacetic acid, phen=1,10-phenanthroline] was synthesized under solvothermal conditions at different pH values. The two complexes were characterized by elemental analysis, IR and single crystal X-ray diffraction. Complexes 1 and 2 were studied the binding with DNA and against cytotoxic actyvity. Fluorescence analysis indicated that the two complexes can bind to DNA. The changes with different gradient concentration of DNA added into the complexes in absorption spectra show a strong π -stacking interaction between the complexes and DNA base pairs. The Cerium(II) complexes showed good cytotoxic activity against cancer cell lines, being 2 the most potent complex. Apoptotic studies of the two novel dinuclear complexes showed significant inhibitory rate on cancer cell growth line KB.

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