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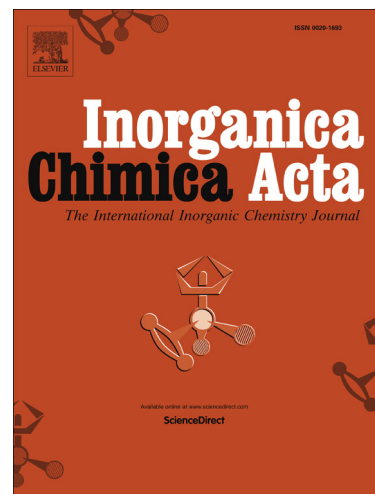
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New Ru(II) complexes containing Tris(2-pyridylmethyl)amine. Synthesis, structural, CT-DNA/ albumin interaction, anti-oxidant and Cytotoxicity studies.

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Abstract

Two new Ru(II) complexes containing Tris(2-pyridylmethyl)amine was synthesised by reacting $[\text{RuCl}_2(\text{EPh}_3)_3]$ E=P, As with TPA.3HClO₄ in 1:1 ratio. The new complexes were characterized by various spectroscopic (IR, UV-Vis and NMR) techniques and the structure of the complexes was confirmed by X-ray crystallography. Crystallographic studies of the complexes **1** and **2** revealed the octahedral geometry around ruthenium ion. The binding ability of the complexes with CT-DNA was carried out by photophysical (absorption / emission titration) methods in which an intercalative mode of binding was observed. Further, their ability to interact with BSA protein has been explored. Investigations of antioxidant properties showed that all the compounds have significant radical scavenging properties. The anticancer activity of the Ru(II) complexes was probed *in vitro* cytotoxicity against human breast (MCF7) and lung (A549) cancer cell lines by MTT assay and cytological changes observed in (AO/EB and DAPI) staining method. Among the biological studies the compounds showed significant activity.

Keywords: Ruthenium(II) complexes; Spectroscopy; X-ray crystallography; CT-DNA/BSA protein binding; Anti-oxidant activity and cytotoxicity.

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