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Ruthenium (II) polypyridyl complexes: Investigation of DNA binding study and ant proliferative activity

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Disruption of the regulation of normal tumor suppressor genes and activation of oncogenes lead to abnormal growth i.e., development of cancer. Platinum complexes represent one of the most successful families of clinically used metal-based anticancer drugs; other transition metal complexes such as ruthenium complexes generate interest as antitumor agents. Ruthenium complexes have shown great potential and remain the subject of extensive drug discovery efforts. Transition metals can provide several interesting complex structures capable of apoptosis & forms an interesting area of research. The present work focuses on a series of mononuclear ruthenium (ii) polypyridyl complexes with n, n-donor ligands (then = 1, 10 phenanthroline, bpy = 2, 2' bipyridine, dmb = 4, 4'-dimethyl 2, 2' bipyridine and an intercalating ligands (bnpip= 2-(4-butoxy-3-nitrophenyl)-1h-imidazo [4, 5-f][1, 10] phenanthroline, synthesized and characterized. The binding abilities of ruthenium complexes were investigated using UV-visible and fluorescence studies. The mode of binding was confirmed by viscosity experiment. Experimental results suggested that they can bind through intercalative mode with DNA having different binding constant. The *in vitro* assays were used to determine the cytotoxicity and apoptotic activities of the complexes. The significant *in vitro* activity observed for these complexes show promising findings for future *in vivo* cytotoxicity and anti-proliferative evaluation.

Biography

Navaneetha Nambigari, assistant professor, department of chemistry, University College of science, saifabad, Osmania University, Hyderabad. She has done PhD in bio-inorganic chemistry and post-doctoral work in computational chemistry. Her core research areas are spectroscopic investigations of metal complexes and their applications (bioinorganic chemistry) and in silico drug designing techniques, based on targeted approaches. Drug designing with special reference for identifying new leads against cancer and rheumatoid arthritis. She has several awards to her credit "best presentation award" at drug design 2017, jnu convention center, New Delhi, India, and April 2017 and at recent advances in applied nano materials, Osmania University, Hyderabad (2016). "Young faculty award" by venus international foundation, Chennai. (2015) and "young chemist award", by royal society of chemistry, London, UK at 42nd iupac conference, "chemistry solutions", Glasgow, UK (2009). She has 13 years of teaching and 16 years of research experience with 5 graduate students and 6 phd scholars working for their thesis dissertation.

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