SYNTHESIS, CHARACTERIZATION AND DNA CLEAVAGE STUDIES OF ISOMERIC PYRIDYL-TETRAZOLE LIGANDS AND THEIR BIVALENT METAL COMPLEXES

B.CHAITHANYA[1], Dr.D.PRABHAKARA CHARY[2], V. Krishna[3], Dr.I.V.KASI VISWANATH[4] B. Syam Kumar[5]

[1]Department of Chemistry,Talla Padmavathi College of Engineering,Warangal,INDIA
[2]Department of physical Sciences,Kakatiya Institute of Technology and Science- Warangal, INDIA
[4]Department of Chemistry,KL University- Vijyawada, INDIA.
[3&5]*Department of Chemistry, NS Raju Institute of Technology, Sontyam, Visakhapatnam,Andhra Pradesh-531173*

Abstract:

A new series of bivalent metal complexes were synthesized from bidentate isomeric pyridyl tetrazole ligands such as 2-(1-vinyl-1H-tetrazol-5-yl)pyridine (L^1), N,N-dimethyl-3-(5-(pyridin-2-yl)-1H-tetrazol-1-yl)propan-1-amine(L^2), 2-(2-vinyl-2H-tetrazol-5-yl)pyridine(L^3), N,N-dimethyl-3-(5-(pyridin-2-yl)-2H-tetrazol-2-yl)propan-1-amine (L^4). All the complexes were characterized by the elemental analysis, molar conductance, FTIR, UV-VIS and magnetic studies. The conductance and spectroscopic data suggested that, the ligands act as monobasic bidentate ligands and form octahedral complexes with general formula $[M(L^{1-4})_2Cl_2]$,. In addition metal complexes displayed good antioxidant and moderate nematicidal activities. The cytotoxicity of ligands and their metal complexes have been evaluated by MTT assay. The DNA cleavage activity of the metal complexes was performed using agarose gel electrophoresis in the presence and absence of oxidant H_2O_2. All metal complexes showed significant nuclease activity in the presence of H_2O_2.

Keywords: Isomeric Pyridyl-tetrazole derivative ligands; bivalent metal; DNA Cleavage studies.