**ABSTRACT**

The transition metal complexes Cu(II), Co(II), Ni(II) and Zn(II) of 2, 3-difuryl quinoxaline have been synthesized and characterized by various physico-chemical techniques viz. elemental analysis, magnetic moment, IR, NMR, TGA, Single crystal XRD and electronic studies. The complexes have found a stoichiometry of 1:2 (M : L), wherein nitrogen in the quinoxaline ring and oxygen in the furyl ring is co-ordinated to the metal. These studies revealed an octahedral geometry for Cu(II) and Co(II) complexes and a square planar geometry for Ni(II) and Zn(II) complexes. The ligand and its complexes were screened for their antibacterial activity against gram positive bacteria and gram negative bacteria namely B. subtilis, S. aureas, E. coli , K. pneumoniea respectively by the disc diffusion method and antifungal activity against M. rubram, A. niger and C. albicans and found to be good. The in-vitro anti cancer activity of the single crystal 2, 3-difurylquinoxaline and its Co(II) complex was screened against the human breast cancer cell line HeLa and the IC50 values are 90.19 and 20.25µg/ml respectively