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Synthesis, spectroscopic characterization and biological studies of mixed ligand complexes of gemifloxacin drug and glycine with Sn(II), Zn(II) and Ce(IV)

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Abstract

Three novel mixed ligand metal complexes have been synthesized by the reaction of metal salt with gemifloxacin in the presence of glycine (0.5:0.5:0.5 molar ratio). The coordination possibility of the two ligand towards metal ions have been proposed in the light of elemental analysis. molar conductance. spectral (IR, UV-Vis and ¹H NMR) and magnetic studies. Results suggest that gemifloxacin and glycine interact with the metals as a bidentate ligands. Electronic and magnetic data proposed the octahedral structure for all complexes under investigation. Antibacterial screening of the compounds was carried out *in vitro* against two G+ve bacteria *Clavibacter michiganensis* and *Bacillus megaterium* and two G-ve bacteria *Escherichia coli* and *Xanthomonas campestris*. Antifungal activity was performed *in vitro* against *Rhizoctonia solani*, *Sclerotinia sclerotiorum*, *Aspergillus niger*, *Botrytis cinerea* and *Penicillium digitatum*. The ligand and its complexes were

also screened for their antioxidant activity. Results showed that some metal complexes showed more biological efficiency than the parent gemifloxacin drug.

Keywords: Gemifloxacin; ¹HNMR; Minimum Inhibitory Concentrations for fungicidal activity; Antioxidant activity.