**ABSTRACT**

Novel imidazoline based Schiff base ligands L1 and L2 were synthesized from o-phenylenediamine/o-aminophenol with creatinine. The ligands were complexed with Co(II) and Cu(II) by direct reaction with metal salts. The synthesized ligands and the metal complexes were characterized by elemental analysis, FT-IR, 1H NMR, mass, electronic, thermal analyses, conductivity and magnetic susceptibility measurements. The conductivity measurements showed the non-electrolytic nature of the complexes. The thermogravimetric analyses confirmed the presence of lattice and coordinated water molecules in the complexes. The DFT calculations were carried out at B3LYP/6- 31G(d,p) level for the determination of the optimized structure of the ligands. The synthesized ligands and the metal complexes were screened for their antimicrobial activity against two gram positive bacteria (Staphylococcus aureus and Bacillus subtilis) and two gram negative bacteria (Escherichia coli and Pseudomonas aeruginosa) and two fungal strains (Aspergillusniger and Candida albicans). The outcomes revealed that the metal complexes showed pronounced activity than the ligands