**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 twogram positive bacteria (*Staphylococcus aureus* and *Bacillus subtilis*) and two gram negative bacteria (*Escherichia coli* and *Pseudomonas aeruginosa*) and two fungal strains (*Aspergillus niger* and *Candida albicans*). The outcomes revealed that the metal complexes showed pronounced activity than the ligands