

## Abstract

Newly synthesized three Cu(II) complexes, [Cu(ABT)<sub>2</sub>(X<sub>2</sub>)], [Cu(BT)<sub>2</sub>(X<sub>2</sub>)], [Cu(DMBT)<sub>2</sub>(X<sub>2</sub>)] and three Ag(I) complexes [Ag(ABT)<sub>2</sub>], [Ag(BT)<sub>2</sub>], [Ag(DMBT)<sub>2</sub>] with three reported thiosemicarbazide (TSC) ligands [L<sub>1</sub>=(ABT)], [L<sub>2</sub>=(BT)] and [L<sub>3</sub>=(DMBT)] were prepared and characterized by FTIR, XRD. The synthesized ligands and their metals complexes were tested against two-gram positive bacteria Bacillus subtilis, Klebsiella pneumonia, and two gram-negative bacteria Acinetobacter and Escherichia coli by using the agar disc diffusion method. All the complexes showed excellent activity better than free ligands complimented by measuring their zone of inhibition. Thus, Cu(II) and Ag(I) can be used as antibacterial agents.

Keywords: Cu(II), Ag(I), [Cu(ABT)<sub>2</sub>(X<sub>2</sub>)], [Cu(BT)<sub>2</sub>(X<sub>2</sub>)], [Cu(DMBT)<sub>2</sub>(X<sub>2</sub>)], [Ag(ABT)<sub>2</sub>], [Ag(BT)<sub>2</sub>], [Ag(DMBT)<sub>2</sub>], Thiosemicarbazide, Infrared spectroscopy, X-ray diffraction, Strains, Zone of inhibition, Agar disc diffusion method, Antibacterial agents.