



Abstract

Two new copper(I) halide complexes formulated as $[\text{Cu}_2(\mu\text{-X})_2(\text{L}_1)]$ and $[\text{Cu}_2(\mu\text{-X})_2(\text{L}_2)]$ were prepared by using diimine ligands such as 1,2-Bis(4-pyridyl)ethane (**1**) and Trans-1,2-Bis(4-pyridyl)ethylene (**2**). These complexes were characterized by using elemental analysis, FT-IR, ^1H NMR, ^{13}C NMR spectroscopy and also tested for antimicrobial activity. The main purpose of the study was to explore the antimicrobial activity of both complexes against Gram positive bacteria *Micrococcus luteus*, *Staphylococcus aureus*, *Enterobacter aerogens* and Gram negative bacteria *Salmonella typhi*, and *Salmonella Setubal*. The complex (**1**) was found to exhibit antibacterial activity against *Salmonella Setubal* while for other strains both complexes appeared almost inactive compared to individual ligands.

Keywords: Copper(I), 1,2-Bis(4-pyridyl)ethane, Trans-1,2-Bis(4-pyridyl)ethylene, Antimicrobial, Infrared spectroscopy, Nuclear magnetic resonance