

Synthesis, spectroscopic characterization, thermal stability
and antimicrobial activity of schiffbase, β -lactam and Zn (II), Cu (II)
complexes derived from sulfamerazine

Abstract

Schiffbase derived from o-vanillin and Sulfamerazine, β -lactam and Zn(II), Cu(I) complexes have been synthesized and characterized by IR, ¹H NMR, MASS spectrometry, molar conductance and thermal analysis. The schiffbase acts as a monobasic bidentate ligand in complex formation. Thermal analysis indicates the presence of lattice water molecules in complexes. The molar conductance measurements indicate the non-electrolyte behaviour of the complexes in DMF solution. The antimicrobial activities of compounds were tested against four bacterial clinical isolates (human pathogenic) strains as 1 gram +Ve bacteria (Staphylococcus aureus), 3 gram -Ve bacteria (Escherichia coli, Pseudomonas aeruginosa and Proteus spp.) to develop novel class of anti-microbial agents with varied mode of action. The results of bioassay showed that the newly synthesized β -lactam emerged as lead with MIC (mg/ml) values with mentioned gram +Ve. While the complexes-schiffbase showed highly antimicrobial activity toward mentioned gram -Ve bacteria. These results compared with standard drugs (Cephalexin; 30 μ g/disc, Ciprofloxacin; 5 μ g/disc, Oxacillin; 1 μ g/disc, Cloxacillin; 1 μ g/disc, Aztreonam; 30 μ g/disc, Ampicillin; 10 μ g/disc, Clarithromycin; 15 μ g/disc, Novobiocin; 30 μ g/disc).