

## Synthesis, characterization and antibacterial activity of copper (II) and nickel (II) complexes with hexaazamacrocyclic ligand / Anob Kantacha

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### Abstrak

Copper(II) and nickel(II) complexes of 14-membered hexaazamacrocyclic ligand with C-methyl substituent have been synthesized by one-pot reaction and characterized by elemental analyses, FT-IR, electronic spectra, and LC-MS. Complex types are  $[\text{Cu}(\text{C}_{18}\text{H}_{42}\text{N}_6)(\text{ClO}_4)_2]$  (1),  $[\text{Ni}(\text{C}_{18}\text{H}_{42}\text{N}_6)](\text{ClO}_4)_2$  (2), and  $[\text{Cu}(\text{C}_{22}\text{H}_{50}\text{N}_6)(\text{ClO}_4)_2]$  (3). The results of spectroscopic techniques indicated that both complexes 1 and 3 containing copper(II) are octahedral geometry, whereas the complex 2 is a square-planar geometry in which the metal center coordinates to the four nitrogen atoms of macrocyclic ligand in a square planar fashion. All complexes were also screened for their antibacterial activity against on two bacteria strains. These results show that copper(II) and nickel(II) complexes were tested for antibacterial activity against gram positive, *Staphylococcus aureus* which was more active than the against gram negative, bacteria *Escherichia coli*. The results showed a good antibacterial activity of all complexes which suggests their potential applications as antibacterial agents.