

P19. Synthesis, Characterization, Crystal Structure of Copper(II) Complexes Containing an ON Donor Schiff Base. Antimicrobial Activity

Elena Pahontu^{1*}, Diana-Carolina Ilies^{2,3}, Sergiu Shova⁴, Codruta Paraschivescu⁵, Mihaela Badea², Aurelian Gulea⁶, Tudor Rosu²

¹ *Inorganic Chemistry Department, Faculty of Pharmacy, University of Medicine and Pharmacy "Carol Davila", Bucharest, Romania*

² *Inorganic Chemistry Department, Faculty of Chemistry, University of Bucharest, Bucharest, Romania*

³ *Organic Chemistry Department, Faculty of Pharmacy, University of Medicine and Pharmacy "Carol Davila", Bucharest, Romania*

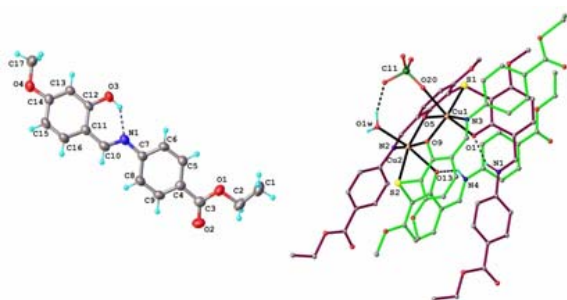
⁴ *Institute of Macromolecular Chemistry "Petru Poni", Iasi, Romania*

⁵ *Organic Chemistry Department, Faculty of Chemistry, University of Bucharest, Bucharest, Romania*

⁶ *Department of Chemistry, Moldova State University, Chisinau, Republic of Moldova*

Schiff base ligands synthesized by using salicylaldehyde or salicylaldehyde derivatives presents a lot of applications and microbial activities. Their O and N donor atoms plays an important role in coordination chemistry related to catalysis and enzymatic reaction, magnetism and molecular architecture. Transition metal complexes with Schiff base ligands are important class of compounds in medicinal and pharmaceutical field, and show a variety of biological applications.

We have synthesized and characterized new Cu(II) complexes: $[\text{Cu}(\text{L})(\text{NO}_3)(\text{H}_2\text{O})_2]$ (1), $[\text{Cu}(\text{L})_2]$ (2), $[\text{Cu}(\text{L})(\text{OAc})]$ (3), $[\text{Cu}_2(\text{L})_2\text{Cl}_2(\text{H}_2\text{O})_4]$ (4), $[\text{Cu}(\text{L})(\text{ClO}_4)(\text{H}_2\text{O})]$ (5) and $[\text{Cu}_2(\text{L}_2\text{S})(\text{ClO}_4)(\text{H}_2\text{O})]\text{ClO}_4 \cdot \text{H}_2\text{O}$ (6) were $\text{HL} =$ ethyl 4-[(E)-(2-hydroxy-4-methoxyphenyl)methyleneamino]benzoate. These new complexes of copper (II) were synthesized using HL and different metal salts. All complexes have been characterized by molar conductivity, magnetic susceptibility measurements, electronic, infrared, mass and EPR spectral studies. The crystal structure of Schiff base has been determined by X-ray diffraction studies, as well as the crystal structure of one of its copper(II) complexes, $[\text{Cu}_2(\text{L}_2\text{S})(\text{ClO}_4)(\text{H}_2\text{O})]\text{ClO}_4 \cdot \text{H}_2\text{O}$ (6).



Perspective view of HL and complex 6.

The in vitro antimicrobial activity against gram-positive bacteria (*Staphylococcus aureus* and *Enterococcus*), gram-negative bacteria (*Escherichia coli* and *Salmonella enteritidis*), and *Candida albicans* was studied and compared to the activity of the free ligand. The antimicrobial data given for the compounds presented in this paper allowed us to state that the metal complexes generally have a better activity than the free ligand and the antimicrobial activity depends on the tested compound structure.

* Corresponding author, tel. +40 21 318 0762, e-mail address elenaandmihaela@yahoo.com (Elena Pahontu)