

P19. Some new Cu(II), Co(III) Fe(III) and Cr(III) complexes containing an ONN donor isothiosemicarbazone: Synthesis, crystal structures and biological activity

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The metal complexes with organic ligand derived from isothiosemicarbazide fragment has received considerable attention due to their bioinorganic applications. In recent years, research has proved the ability of isothiosemicarbazones and their complexes to be antimicrobial, antiviral, anti-inflammatory and chemotherapeutic agents, potentially useful for inhibiting the activities of cancer cells [1-3].

The aim of this work was the synthesis of some metal complexes with 2-hydroxybenzaldehyde *N*(4)-allyl-*S*-methylisothiosemicarbazone (**HL**) and their characterization, and investigation of antimicrobial and antiproliferative activity through *in-vitro* experiments. The ligand was obtained by refluxing in ethanol an equimolar amount of *N*(4)-allyl-3-thiosemicarbazide with 2-hydroxybenzaldehyde in the presence of iodomethane. Metal complexes were synthesized using ligand **HL** and different metal salts. All complexes were characterized by ¹H, ¹³C NMR, IR, UV-Vis, elemental and thermal analysis, molar conductivity, and magnetic susceptibility. In addition, the structures of the ligand and of six complexes has been determined by X-ray diffraction method. The complexes were tested for their *in-vitro* antimicrobial activity against: *Staphylococcus aureus*, *Enterococcus faecalis*, *Escherichia coli*, *Salmonella abony* and *Candida albicans* strains. Also, the antiproliferative activity was tested on human leukemia HL-60, cervical cancer HeLa and normal MDCK cells.

The physical-chemical analyses confirmed the newly obtained structures. The isothiosemicarbazone acts as a mononegative tridentate ligand coordinating to the metal center through the O–N–N chelating system. From the tested complexes, the Cu(II) and Fe(III) complexes have shown significant biological properties.

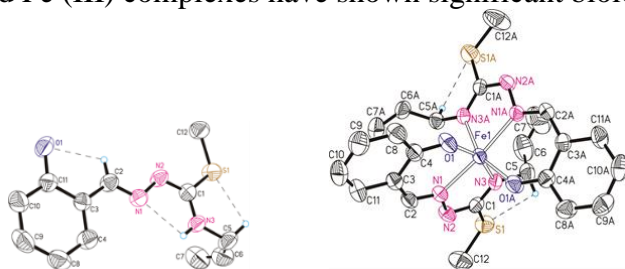


Figure 1.
Crystal structure of **HL** and iron complex.

References

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