



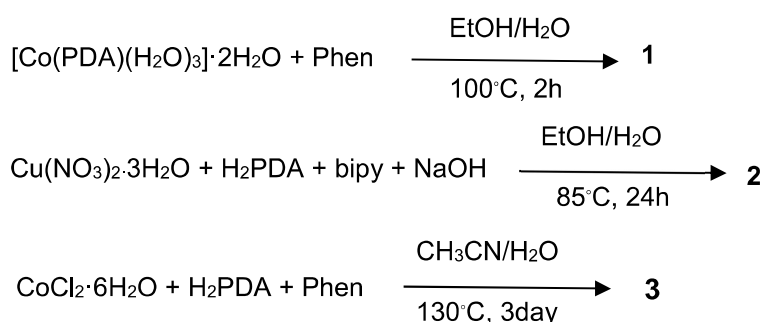
## Clinical investigations of cobalt and copper complexes containing 1,10-phenanthroline-2,9-dicarboxylic acid in some cancer therapy treatments

Samaneh Sadeghzadeh, Amir Shokooh Saljooghi\* and Masoud Mirzaei

Department of Chemistry, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran

\*Email: saljooghi@um.ac.ir

The design of ligands for biomedical, biological, and environmental applications and for metal ion separations, is of considerable interest, in which ligand preorganization has been an important aspect. A ligand which has the most preorganized feature is constrained compared to free ligand, and is of compatibility required for complexing with metal ions which 1,10-phenanthroline-2,9-dicarboxylic acid (H<sub>2</sub>PDA) is of this type of ligand. Complexes involving the metal ions Co(II) and Cu(II) have many and varied applications. They have been used and screened for their antifungal and antibacterial activities. Therefore, we synthesized three complexes bearing above-mentioned ligand and 1,10-phenanthroline (Phen) as auxiliary ligand in the presence of Co(II) and Cu(II) metal ions through different techniques. Regarding our obtaining data, one can formulate the complexes as [Co(PDA)(Phen)]·EtOH·H<sub>2</sub>O(**1**), [Cu<sub>2</sub>(PDA)<sub>2</sub>(H<sub>2</sub>O)<sub>2</sub>]·2H<sub>2</sub>O(**2**), and [Co(PDA)(H<sub>2</sub>O)<sub>3</sub>]·2H<sub>2</sub>O(**3**) were characterized by some physico-chemical methods such as elemental analysis, Infrared spectra (IR). The anticancer and cytotoxic properties of these complexes on several cancer cell lines were tested by MTT assay, flow cytometry, and TUNEL tests. Also, to compare the cytotoxicity of these complexes with common chemotherapy drugs, the cystic acidic property of cisplatin (or another anti-cancer drug) were evaluated as a positive reference and control.



### References

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