Poster Presentation

LA.P48

Synthesis, structural characterization and biological properties of copper complexes with ligands containing phosphonium substituent

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A series of copper(II) complexes containing phosphonium substituted hydrazone, (L) with the formulations [CuL]Cl and [Cu(L')L]Cl, where L = doubly deprotonated hydrazone; L' = 1,10'-phenanthroline, 2,2'-bipyridine, 4,4-bipyridine and 5,5'-dimethyl-2,2'-bipyridine has been synthesized. The compounds were characterized by elemental analysis, IR and NMR spectroscopic methods and in the case of crystalline products by X-ray crystallography. The crystal structure of [CuL]Cl and the extent of distortion from ideal square pyramidal geometry for CuL')(I)]Cl will be discussed. The cytotoxicity and topoisomerase I (topo I) inhibition activities of these compounds were also studied. It is noteworthy that the addition of N,N-ligands to the copper(II) complex lead to the enhancement in the cytotoxicity of the compounds, especially against human prostate adenocarcinoma cell line (PC-3). The complexes can also inhibit topo I through the binding to DNA and the enzyme.

Keywords: Copper complexes, Phosphonium, X-ray structures