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Assessment of the Anticancer Activity of Novel Macroacyclic Complexes of Cu(II), Ni(II), and Co(II) with a Newly Synthesized N^1,N^2-bis(2-aminobenzyl)-N^1,N^2-bis(pyridin-2-ylmethyl)propane-1,2-diamine Ligand.

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Metal complexes exhibit promising potential in medicinal applications, such as cancer treatment [1]. Metal complexes also play a crucial role in bioinorganic chemistry, particularly in understanding metalloprotein function [2]. In this work, three new metal complexes have been obtained from the reaction of a new N^1, N^2-bis(2-aminobenzyl)-N^1, N^2-bis(pyridin-2-ylmethyl) propane-1,2-diamine ligand (L) with Ni(II), Cu(II), and Co(II) ions. To evaluate the biological potential of the ligand and the synthesized metal complexes, their binding behavior with DNA was studied by molecular modeling methods. The Molecular docking studies showed that the free ligand and its complexes were bound to the major groove of DNA. The synthesized compounds were tested for activity against lung carcinoma epithelial cells (A549) using the MTT cell viability assay. A comparative study of the IC50 values indicated that the Cu(II) complex exhibited the highest activity, while the Co(II) and Ni(II) complexes showed more potent antiproliferative activity than the ligand.

Keywords: metal complexes, biological activities, Molecular docking

References

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