



Preparation, Characterization study of 2-(2-hydroxy-4-(phenyldiazenyl)benzylidene)-N-(4-phenylthiazol-2-yl) hydrazinecarboxamide and its Metal Complexes

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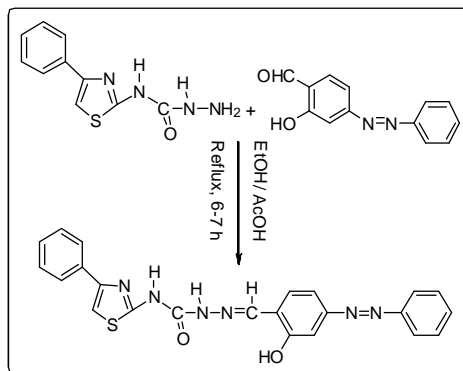
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Accepted on 2nd March, 2018

ABSTRACT

The Schiff base ligand (L) 2-(2-hydroxy-4-(phenyldiazenyl)benzylidene)-N-(4-phenylthiazol-2-yl)hydrazinecarboxamide obtained by the condensation of N-(4-phenylthiazole-2-yl)hydrazinecarboxamide with 2-hydroxy-4-(phenyldiazenyl)benzaldehyde and its newly synthesized Cu(II), Co(II), Ni(II) and Zn(II) complexes have been characterized by elemental analysis, molar conductance, magnetic susceptibility, thermal analysis and various spectral studies like FT-IR, ¹H NMR, ESI mass, UV-Visible, ESR spectroscopy and powder X-ray diffraction data. The spectral studies confirmed tridentate ONO donor binding of the ligand involving oxygen atom of amide carbonyl, azomethine nitrogen and oxygen of hydroxyl via deprotonation. Spectral analysis indicates octahedral geometry for Cu(II), Co(II) and Ni(II) complexes and tetrahedral geometry for Zn(II) complex. Newly synthesized ligand and its metal complexes were screened for their antibacterial and antifungal activity by minimum inhibitory concentration (MIC) method. The DNA cleavage activities were studied using plasmid DNA pBR322 as a target molecule by agarose gel electrophoresis method. Furthermore, the antioxidant activity of the ligand (L) and its metal complexes were determined in vitro by reduction of 1,1-diphenyl-2-picryl hydrazyl (DPPH), the ligand exhibited more than potent in vitro-antioxidant activity than its metal complexes.

Graphical Abstract



Synthesis of 2-(2-hydroxy-4-(phenyldiazenyl)benzylidene)-N-(4-phenylthiazol-2-yl) hydrazinecarboxamide

Keywords: Transition Metal complex, Thiazole Schiff base, 2-hydroxy-4-(phenyldiazenyl) benzaldehyde, Biological activity.
