

Synthesis, Characterisation of Cu(II) Complex with Water Soluble Analytical Reagent Like 2-[(5-hydroxy-3-methyl-1-(4-sulfophenyl)-1H-pyrazolyl)diazenyl]benzene-1,4-disulfonic Acid and Their Biological Activity

Anil V. Patil

Vasantrao Naik Art's, Science and Commerece College Shahada, Nandurbar, Maharashtra, India

Ravindra L. Aavhare

Sir P.T. Sarvajanik College of Science, Surat, Gujarat, India

Ketan C. Desai *

Sir P.T. Sarvajanik College of Science, Surat, Gujarat, India

Abstract

The metal complexes have been synthesized with the pyrazolone azo dye ligand 2-[(5-hydroxy-3-methyl-1-(4-sulfophenyl)-1H-pyrazol-4-yl)diazenyl]benzene-1,4 disulfonic acid (HMSPDABDS) derived from aniline-2,5-disulphonic acid and 4-(5-hydroxy-3-methyl-1H-pyrazol-1-yl)benzene-1-sulfonic acid as a coupling compound by the diazotization reaction. The aniline-2, 5-disulphonic acid diazonium salt solution reacts in solution with pyrazolone coupler to form a coupling chemical. The metal complexes were made using Cu(II), Ni(II), Co(II), Mn(II), and Fe(III) with azo dye ligand. The various spectroscopic methods, including UV-visible, ¹H NMR, and Fourier-transform infrared (FTIR), were used to identify and validate the synthesized ligand structures. Checking the melting point of the ligand allowed researchers to study its physical characteristics. The creation of metal complexes under ideal conditions has been investigated. The prepared metal ion complexes were recognized using UV-visible and FT-IR spectra, and their biological activities were also checked.

Keywords

Aromatic amines, Pyrazolone derivative, Metal complexes, Spectral studies, Heterocyclic acid dyes, Physico-chemical studies, Antibacterial activity.