



ORIGINAL ARTICLE

Synthesis, characterization, biological applications, and molecular docking studies of amino-phenol-derived mixed-ligand complexes with Fe(III), Cr(III), and La(III) ions



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Abstract A new series of Fe(III), Cr(III), and La(III) mixed-ligand complexes, resulting from the interaction of 2-aminophenol with 2-hydroxy acetophenone (HL₁) as primary ligand and L-histidine (L₂) as a secondary ligand, has been investigated using various physicochemical studies such as elemental analyses, molar conductivity, magnetic moment, infrared, UV/Vis, ¹H NMR, and mass spectroscopic techniques. The microanalytical results indicate that the mixed ligand complexes were designed in a 1:1:1 M ratio. The electronic spectral data indicated that all the synthesized complexes have an octahedral structure. The disc diffusion assay was used to determine the disc inhibition zone (IZ, mm) and minimum inhibitory concentration (MIC, g/mL) of the investigated compounds against the growth of the pathogenic bacterial strains *S. aureus*, *E. faecalis*, *P. aeruginosa*, *Klebsiella sp.*, and *E. coli*. The MTT test was used to determine the cytotoxicity of these reported compounds against the human hepatocellular liver cancer (HEPG-2) cell lines. The molecular docking study for the compounds against the EGFR tyrosine kinase receptor (PDB code: 1 M17) was conducted to

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