

Synthesis, Spectroscopic Characterization and Biological Activity of the Metal Complexes of the Schiff Base Derived from Phenylaminoacetohydrazide and Dibenzoylmethane

Abdou Saad El-Tabl^a, Fathey A. El-Saied^a, Winfried Plass^b, Ahmed Noman Al-Hakimi^{*c}

a) Department of Chemistry, Faculty of Science, Menoufia University, Shebin El-Kom, Egypt

b) Department of Chemistry, Fridrich Schiller Universitat, Jena, Germany

c) Department of Chemistry, Ibb University, Ibb, Yemen

anmalhakimi@yahoo.com

A new series of mono and binuclear Mn(II), Fe(III), Co(II), Ni(II), Cu(II), Zn(II), La(III), Ru(III), Hf(IV), ZrO(II) and UO₂(II) complexes of phenylaminodibenzoylhydrazone have been synthesized and characterized by elemental analyses, IR UV-vis spectra, magnetic moments, conductances, thermal analyses (DTA and TGA). The DTA and TGA show that, the complexes are thermally stable up to 50 °C. Dehydration is characterized by endothermic peaks within the temperature 65–90 °C range [1]. The electron spin resonance (ESR) measurements show that, The *g*-values of copper complexes indicating square planar geometry around the copper(II) ion [2]. However, the ESR spectrum of manganese(II) complexes show isotropic. The IR spectral data show that, the ligand behaves as a neutral bidentate, monobasic bidentate, or monobasic tridentate or dibasic tridentate towards the metal ion. Molar conductances in DMF solution indicate that, the complexes are non-electrolytes. The ESR spectra of solid complexes (**9** and **10**) show axial and non-axial types indicating a $d_{(x^2-y^2)}$ ground state with significant covalent bond character. However, complexes (**11** and **12**), show isotropic type, indicating manganese(II) octahedral geometry. Antibacterial and antifungal tests of the ligand and its metal complexes are also carried out and it has been observed that the complexes are more potent bactericides and fungicides than the ligand. The variation in the activity of different complexes against different microorganisms depends either on the impermeability of the cells of the microbes or differences in ribosome's in microbial cells [3]. The antibacterial and antifungal activities of the hydrazone ligands and their metal complexes are screened using the disk diffusion [4].

REFERENCES

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