



Original Research Article

Nematicidal Activity Studies of Cu²⁺ and Zn²⁺ Complexes with Some Aldimine Ligands Against *Meloidogyne arenaria*: A Root Knot Nematode of *Arachis hypogea*

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ABSTRACT

Two Schiff base donor ligands (aldimines) were used to prepare four transition metal complexes of Cu(II) and Zn(II) by treating 2-nitroaniline and salicylaldehyde to form the Schiff base ligand 2-[(2-nitrophenylimino) methyl] phenol (L₁) and 4-nitroaniline and salicylaldehyde to form 2-[(4-nitrophenylimino)]methyl]phenol (the L₂ counterpart). The processes were accomplished using a microwave oven assisted reaction regulated at 100°C for 30 min. Characterization was carried out on the basis of physical properties elemental analysis, FTIR, ¹H-NMR and ¹³C-NMR spectroscopy, electronic spectral and mole ratio method. Results from the FTIR spectra of the ligands and corresponding complexes showed that the ligands L₁ and L₂ displayed a bidentate character with coordination via the nitrogen and oxygen atoms. The ¹H-NMR and ¹³C-NMR data of L₁ and L₂ confirmed the formation of the complexes of Cu(II) and Zn(II) showing that the probable coordination geometries of Cu(II) and Zn(II) are octahedral. The complexes were found to be non electrolytes in alcohol. The nematicidal activity studies implied that the ligands and their metal complexes showed promising nematicidal ability with the metal complexes showing comparatively higher inhibiting ability than the free ligands against the root knot nematode *Meloidogyne arenaria* present in the crop *Arachis hypogea*.

Keywords: Nematicidal activity, Aldimines, *Meloidogyne arenaria*, *Arachis hypogea*