New cadmium chloride complexes with imidazolidine-2-thione and its derivatives: X-ray structures, solid state and solution NMR and antimicrobial activity studies. Wazeer, Mohammed I. M.; Isab, Anvarhusein A.; Fettouhi, Mohammed. Department of Chemistry, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia. Polyhedron (2007), 26(8), 1725-1730. Publisher: Elsevier B.V.,

Abstract

Reactions of imidazolidine-2-thione (Imt), 1,3-diazinane-2-thione (Diaz) and 1,3-diazipane-2-thione (Diap) with cadmium(II) chloride in methanol result in the formation of 2:1 complexes. Both solid state and soln. NMR, in addn. to X-ray structures, confirm the exocyclic sulfur atom to be the donor in all cases. Cadmium shielding tensors and anisotropies were calcd. from the solid-state NMR spectra. The X-ray structures of two complexes (MeImt)2CdCl2 (MeImt = N-methylimidazolidine-2-thione) and (EtImt)2CdCl2 (EtImt = N-ethylimidazolidine-2-thione) reveal distorted tetrahedral geometries. Antimicrobial activity studies show that the Cd(Diap)2Cl2 complex exhibits substantial antibacterial activities compared to the corresponding Zn(II) complex.