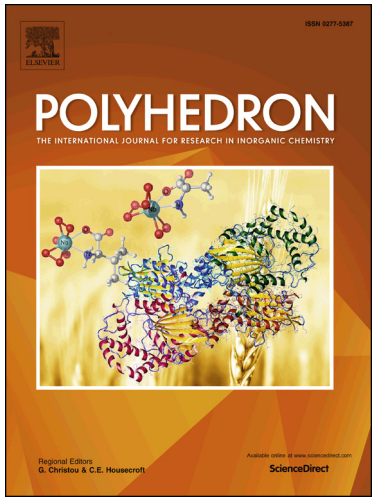

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Solvent assisted synthesis, structural characterization and biological evaluation of cobalt(II) and nickel(II) complexes of Schiff bases generated from benzyl carbazate and cyclic ketones

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Abstract

A series of mononuclear cobalt and nickel complexes of the types $[M(NCS)_2(L1)_2]$, M = Co **1** or Ni **2**, $[M(NCS)_2(L2)_2].nH_2O$, M = Co (n=0) **3** or Ni (n=2) **4** and $[M(NCS)_2(L3)_2]$, M=Co **5** or Ni **6**, where L1=benzyl 2-(cyclobutanylidene)hydrazinecarboxylate, L2=benzyl 2-(cyclopentanylidene)hydrazinecarboxylate and L3=benzyl 2-(cyclohexanylidene)hydrazinecarboxylate, were synthesized by template reactions of the metal nitrates, ammonium thiocyanate and benzyl carbazate (**bc**) with cyclobutanone (**cb**), cyclopentanone (**cp**) or cyclohexanone (**ch**). These compounds have been characterized by elemental analysis, infrared, electronic absorption and ^{1}H NMR spectroscopies, together with single crystal X-ray diffraction. Crystal structures of the complexes **1, 3-6** showed that the Schiff base ligands coordinate to the metal ions *via* the azomethine nitrogen and carbonyl oxygen atoms. In each case the two thiocyanate ligands coordinate through their nitrogen atoms resulting in complexes with a six coordinate octahedral geometry. The thermal stability of the complexes was investigated by TG-DTA and all of the compounds (**1-6**) undergo endothermic followed by exothermic decomposition processes to form the respective metal oxides. The antibacterial