Structural and Spectral Studies of 2-Pyridineformamide Thiosemicarbazone and its Complexes Prepared with Zinc Halides

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Reduction of 2-cyanopyridine by sodium in dry methanol in presence of thiosemicarbazide produces 2-pyridineformamide thiosemicarbazone, HAm4DH. The crystal structure of HAm4DH, which has a number of intermolecular interactions involving its five NH hydrogen atoms, has been solved. Crystal structures of the complexes prepared by reaction of HAm4DH with zinc(II) chloride, bromide and iodide have also been obtained. Neutral HAm4DH is coordinated via the pyridyl nitrogen, imine nitrogen and thione sulfur atoms, and each complex is five-coordinate with two halogen ligands. The structures of the three complexes are best described as square pyramidal with $[Zn(HAm4DH)I_2]$ having the largest distortion toward a trigonal bipyramid.