P40

SYNTHESIS, CHARACTERIZATION, CRYSTAL STRUCTURES OF NICKEL(II), PALLADIUM(II) AND COPPER(II) COMPLEXES WITH 2-FURALDEHYDE-4-PHENYLTHIOSEMICARBAZONE

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2-Furaldehyde-4-phenylthiosemicarbazone (ftsc-N-Ph) and its nickel(II), palladium(II) and copper(II) complexes were synthesized and characterized. The ligand has been characterized by elemental analyses, IR, electronic, EPR, ^{1}H NMR and ^{13}C NMR spectroscopy. The bidentate nature of the ligand is evident from the IR spectra.

The nickel(II), palladium(II) and copper(II) complexes have been characterized by different physicochemical techniques like molar conductivity, magnetic susceptibility measurements, electronic, infrared and EPR spectral studies. For the copper(II) complexes metal-ligand bonding parameters have been evaluated from the EPR spectra. These parameters indicate strong in-plane σ and in-plane π bonding.

In addition, the structures of the ligand and complexes nickel(II) and palladium(II) have been determined by single-crystal X-ray diffraction. These complexes crystallized into triclinic lattices with space group Pī. The metal ion is coordinated through the sulfur atom and the azomethine nitrogen atom.

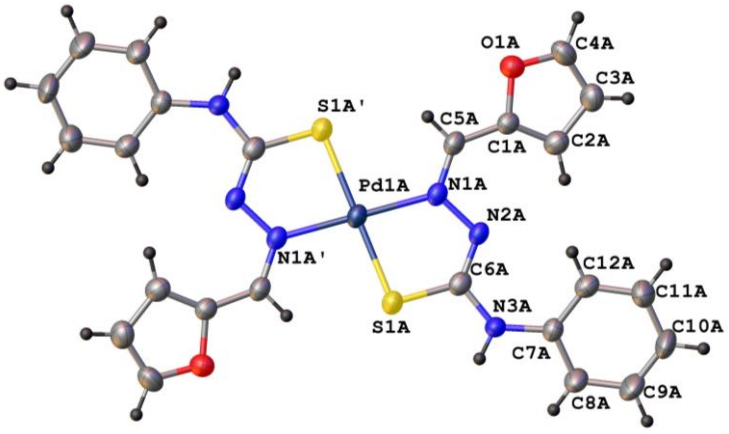


Fig. 1. Perspective view of $[Pd(L)_2]$ along with the atom numbering scheme