Structural and Spectral Studies of Palladium(II) Complexes of Pyridil bis{3-Piperidyl-, bis{Hexamethyleneiminyl-, bis{N(4)-Diethyl- and bis{N(4)-Dipropylthiosemicarbazone}

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Pyridil, bis(Thiosemicarbazone), Palladium(II) Complexes

Pyridil bis\{N(4)-substituted thiosemicarbazones\}, in which the substituents replacing the NH\textsubscript{2} group on the thiosemicarbazone moieties are piperidyl, H\textsubscript{2}Plpip; hexamethyleneiminyl, H\textsubscript{2}Plhexim; diethylamino, H\textsubscript{2}Pl4DE; and dipropylamino, H\textsubscript{2}Pl4DP, have been synthesized. Representative palladium(II) complexes of these bis (thiosemicarbazones) have been characterized by IR, electronic, mass, and \textsuperscript{1}H and \textsuperscript{13}C NMR spectroscopy. Crystal structures have been determined for H\textsubscript{2}Plhexim and two of its palladium(II) complexes. H\textsubscript{2}Plhexim is in the Z isomeric form with intramolecular hydrogen bonding from both thiosemicarbazone moieties to pyridine nitrogens. [Pd(Plhexim)]\textsuperscript{2+} has square-planar N\textsubscript{2}S\textsubscript{2} coordination (i. e., imine nitrogen and thiolato sulfur atoms). [Pd\textsubscript{2} (Plhexim)Cl\textsubscript{2}]\textsubscript{2+}DMSO has two PdNNSCI centers with the pyridine nitrogen, imine nitrogen or hydrazinic nitrogen and thiolato sulfur atoms coordinated.