SYNTHESIS AND CHARACTERIZATION OF GOLD-PHOSPHINE COMPLEXES FOR POTENTIAL USE AS ANTI-ARTHRITIC AGENTS

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New gold(I)-phosphine complexes have been synthesized and studied using multinuclear ¹H- and ³¹P-NMR spectroscopy and X-ray diffraction methods. ³¹P-NMR is particularly helpful as it distinguishes between phosphorus atoms in different chemical environments. Gold(III) salts were easily reduced *in situ*. A variety of diphosphines, L = PPh₂(CH₂)_nPPh₂, n = 1-4, and one triphosphine, triphos, CH₃C(CH₂PPh₂)₃, were added stoichiometrically to the Au(I) solution so that each gold atom was bound to one phosphorus. These digonal gold complexes were isolated. Monophosphines such as triphenylphosphine, PPh₃, and tricyclohexylphosphine, PCy₃, were added in organic solvent to increase the metal coordination number. Several equilibria in solution will be described together with diffraction studies performed on single crystals. In one case PCy₃ displaced completely the diphosphine ligand.