Title: Gold(I) complexes with a supporting ferrocene N-donor

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Abstract: The main objective of this work was the synthesis of the complex [AuCl(4-fcpy)], its characterization by NMR spectroscopy, mass spectrometry and X-ray diffraction. The synthesis of the complex including the intermediates, which were 4-bromopherocene and the ligand 4-ferrocenylpyridine (4-fcpy), which was characterized by ^{1}H NMR spectroscopy and mass spectrometry. Furthermore, the catalytic abilities of this complex in cyclization of N-(prop-2-yn-1-yl)benzamide were studied. In the introduction of this work, in addition to the general chemical properties of gold and its coordination chemistry, examples of gold(I) and gold(III) complexes that find applications in catalysis and medicine are given. In addition to the chemistry of gold, the properties and applications of ferrocenylpyridine as a ligand are discussed.

Keywords: gold(I) complexes; ferrocene ligands; synthesis; structure determination; catalysis