



Abstract

Four new mixed ligand silver(I) complexes that contain a series of bis(diphenylphosphino)alkanes such as 1,1-bis(diphenylphosphino)methane (dppm), 1,2-bis(diphenylphosphino)ethane (dppe), 1,3-bis(diphenylphosphino)propane (dppp), 1,4-bis(diphenylphosphino)butane (dppb) and dithiocarbamate ligands such as dimethyldithiocarbamate, diethyldithiocarbamate were synthesized and characterized using elemental analysis, FT-IR, ^1H NMR and ^{13}C NMR. Complexes (1), (3) and (4) were characterized by single crystal x-ray diffraction. $[\text{Ag}_2(\text{dppm})_2(\text{S}_2\text{CN}(\text{CH}_3)_2)_2] \cdot \text{CH}_3\text{CN}$ (1), $[\text{Ag}_2(\text{dppb})_2(\text{S}_2\text{CN}(\text{C}_2\text{H}_5)_2)_2]$ (4) were binuclear, while $[\text{Ag}(\text{dppp})(\text{S}_2\text{CN}(\text{CH}_3)_2)]_n$ (3) was a one-dimensional (1D) coordination polymer. All the complexes were further tested for their antimicrobial activities.

Keywords: Silver(I), Dithiocarbamate, Bis(diphenylphosphino)alkanes, Antimicrobial, Nuclear magnetic resonance, Infrared spectroscopy, Single crystal x-ray crystallography