

Platinum metal chemistry of bisphosphines derived from N,N'-substituted ethylenediamine derivatives

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The role of chelate complexes containing bisphosphine ligands in homogeneous catalysis for various organic transformations is well documented. However, binuclear complexes with bridging bisphosphines can promote both homogeneous and heterogeneous catalysis depending upon the nature of the metals and their oxidation states. Binuclear palladium (I) and platinum (I) complexes, co-ordinate small molecules across the metal-metal bond to form 'A-frame' complexes and are considered to be possible models for catalytic intermediates generated on the metal surface. In heterobimetallic systems selective transformation of each metal centre can generate a whole new range of systems. The chemistry of platinum metal complexes containing *bis*-(diphenylphosphino)-methane(dppm) has been extensively studied in this regard whereas similar types of reports concerning *bis*phosphines wherein the phosphorus atoms are separated by more than two atoms/heteroatoms are limited. We report here the synthesis of new complexes of the type $[MX_2(h^1-L)_2]$ {M = Pd, Pt; L = Ph₂PN(R)CH₂CH₂N(R)-PPh₂; R = CH₃, CH₂C₆H₅, C₆H₅} containing two dangling *bis*phosphines which can be used as precursors, to prepare a series of homo- and hetero-binuclear complexes. Also, synthesis and spectroscopic studies of M(0) and M(I) (M = Pd, Pt) complexes are presented.