Transition metal containing dendrimers based on cyclophosphazene units

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The series of complexes [N3P3(OC6H5)5 OC6H4CH2CN·MCln] PF6, N3P3(OC6H4CH2 CN)6·(MCln)6] (PF6)6, [N3P3(OC6H5)5 OC6H4CH2CN·MCln-1]Cl and [N3P3(OC6H4CH2 CN)6·(MCln-1)6]Cl6, MCln = MnCl2, FeCl3, COCl2, NiCl2, CuCl2 have been synthesized by reaction of the corresponding cyclophosphazene ligands: N3P3(OC6H5)5 OC6H4CH2CN (L1) and N3P3(OC6H4CH2 CN)6 (L-2) with the respective salts MCln, in CH3OH as solvent and in presence or absence of NH4PF6. The new compounds were characterized by elemental analysis and IR, UV-Vis and EPR spectroscopy as well as electrochemical methods. The reaction of CuCl2 with the ligand L1 affords the copper (I) complex. [N3P3(OC6H5)5 OC6H4CH2CN·CU]PF6 instead the expected Cu(II) complex, which was characterized by multinuclear NMR. For comparison, the complex [N3P3(OC6H5)5 OC6H4CH2CN·ZnCl]PF6 was also prepared. The hexametalladendrimers of iron exhibits a six-electron reduction while that the correspondent monometalladendrimers exhibit a single one-electron reduction. U