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Synthesis and Spectral Characterization of SN(IV), HG(II) and CD(II) Complexes of Heteroditopic 3-(4-Fluoro Phenyltelluro) Propylamine

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Abstract—*To examine the ligation behaviour of heteroditopic (Te, N) ligand i.e. 3-(4-fluoro phenyl telluro) propylamine (L^1), the synthesis of (L^1) and its complexes has been carried out. The ligand (L^1) is synthesised by reacting nucleophile ($FArTe^-$) generated in situ by borohydride reduction of bis (4-fluorophenyl) ditelluride under nitrogen atmosphere, with 3-chloro propylamine hydrochloride. The ligation behaviour of L^1 is examined with organotin (IV) moieties having large anions such as $Ph_3Sn(BPh_4)$, $Ph_2SnCl(BPh_4)_2$, Ph2SnCl(NO3), $Ph_2Sn(ClO_4)_2$, as well as with transition metal salts namely $HgCl_2$ and $CdCl_2$. The complexes having stoichiometries $[Ph_3Sn.L^1](BPh_4)$ (1) $[Ph_2Sn(Cl).L^1](BPh_4)_2$ (2), $[Ph_2Sn(Cl).L^1](NO_3)$ (3), $[Ph_2Sn.L^1](ClO_4)_2$ (4), $[HgCl_2.L^1]$ (5) and $[CdCl_2.L^1]$ (6) have been synthesised in dry methanol. Elemental analysis, IR, ^1H, ^{13}C, ^{119}Sn NMR, ESI mass spectra along with the molar conductance data has been used to authenticate the new compounds. The conductance data confirms the ionic nature of the complexes 1-4. The cumulative evidences support the fact that in complexes 1,2 and 3 the heteroditopic (Te, N) ligand (L^1) ligates through Te alone indicating unidentate mode of co-ordination where as in complexes 4, 5 and 6 it ligates through both Te and N by adopting bidentate mode of co-ordination.*

Keywords: *3-chloro propylamine hydrochloride, $NaBPh_4$, Tellurium.*