Tetrakis(4-carboxyphenyl)stannane - a Versatile Building Block for Heterometallic Coordination Polymers

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In spite of limitations mainly due to air or moisture sensitivity, organometallic species can be used as exo-bi- or multidentate spacers in coordination chemistry to result in heterometallic polymers.\textsuperscript{1} However, the use of main group organometallics as building blocks is largely undeveloped. We have reported recently on the use of bis(4-pyridyl)mercury(II)\textsuperscript{2,3} and triphenylbismuth(V) derivatives of isonicotinic and nicotinic acids\textsuperscript{1} as neutral organometallic ditopic linkers to build coordination polymers.

As an extension of our work on heterometallic coordination polymers we investigated the potential of the tetrahedral organometallic tecton \([\text{Sn(C}_6\text{H}_4\text{CO}_2\text{-4})_4]^{4-}\) (L) as building block. We report here on several new coordination polymers of different dimensionalities obtained by reacting metal salts or complexes with \(\text{Sn[C}_6\text{H}_4\text{C(O)OH-4}}\) in basic or acidic media, \(i.e.\) \([\text{Co(H}_2\text{L})(\text{CH}_3\text{OH})_4] (1-D), [\text{Zn(cyclam)}]_2(L)\) and \([\text{Cu(phen)}]_2(\text{H}_2\text{O})(L)\) (2-D), or \([\text{M}_2(L)(\text{DMF})_2(\text{H}_2\text{O})] (\text{M} = \text{Zn, Cd, M}_2(L)(\text{CH}_3\text{OH})_3 (\text{M} = \text{Co, Zn, [Cu}_2(\text{H}_2\text{O})_2(L)\) and \([\text{Na}_2\text{M}(L)] (3-D) (see Figure 1).

![Figure 1 Types of coordination polymers based on the organometallic tecton \([\text{Sn(C}_6\text{H}_4\text{CO}_2\text{-4})_4]^{4-}\).](image)