

Metal Directed One-Pot Syntheses: Mono-, Di- and Tetra-nuclear Clusters [1]

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Upon reaction of HL¹ **1** (picoline-tetrazolylamide) with cobalt(II) acetate under aerobic conditions or with copper(II) acetate, the mono-nuclear complex [Co^{III}(L¹)₃] **3** and the di-nuclear complex [Cu₂(L¹)₄] **4** were generated. In **3** and **4**, (L¹)[–] exclusively coordinates across its nitrogen donors. However, when HL² **5** (picoline-tetrazolylthioamide) was reacted with copper- or nickel acetate, the di-nuclear cluster [Cu₂(L²)₄] **6** and the tetra-nuclear cluster [Ni₄(L²)₈] **7**, respectively, were isolated. Contrary to **3** and **4**, in **6** and **7**, (L²)[–] also coordinates across sulfur.

Key words: Cluster Compounds, Self Assembly, Supramolecular Chemistry