

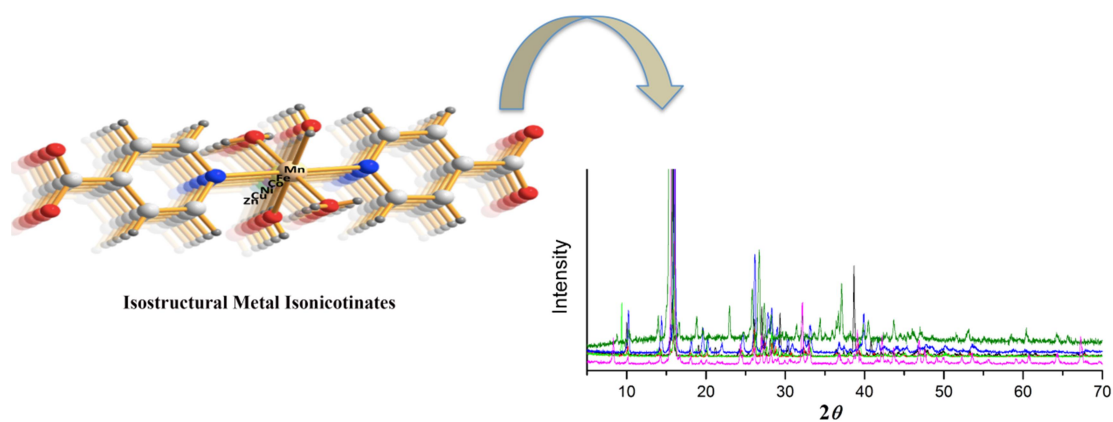
# Isostructurality of complexes of the type tetraaquabis(isonicotinato)metal(II)

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**Abstract:** Structural investigations on a series of six analogous metal(II) isonicotinate tetrahydrates,  $M(\text{iso})_2(\text{H}_2\text{O})_4$  with  $M = \text{Mn, Fe, Co, Ni, Cu}$  and  $\text{Zn}$ , all crystallizing in  $P\bar{1}$  space symmetry, have been carried out. In the crystal structure of each of the six metal complexes of type tetraaquabis(isonicotinato)metal(II), extensive intermolecular hydrogen bonds involving all possible donor and acceptor sites lead to the formation of a 3-D supramolecular network that has been analysed by the graph-set approach. Their comparable lattice parameters and similar PXRD patterns indicate close structural similarity within the series. However, the crystallographic isostructurality of the species evaluated by the method of Kálmán & Fábíán suggests that the Cu species presents some differences from the rest. In an overall sense, this behaviour is reflective of the Irving-Williams order of stability of octahedral complexes formed by bivalent metal ions.

**Keywords:** Metal(II) isonicotinates,  $R_4^4(12)$  graph-set, Isostructurality, Kálmán & Fábíán, Powder X-ray diffraction, Irving-Williams order