

## Abstract

A simultaneous reduction of copper (II) to copper (I) by pyridinecarboxylate and the substitution of carboxylato groups by iodo nucleophiles in a self-assembly process under hydrothermal conditions afforded a new iodine-inclusion coordination polymer  $[\text{CuI}(\text{C}_5\text{H}_3\text{NI}_2) \cdot 1/2\text{I}_2]$  1. The synthetic studies of the substitution process produced a new supramolecular compound  $[\text{IC}_5\text{H}_3\text{NCOOH}]$  2 and revealed that the catalytic properties of copper ions in redox and substitution reactions under hydrothermal conditions are attractive. Crystal data for  $[\text{CuI}(\text{C}_5\text{H}_3\text{NI}_2) \cdot 1/2\text{I}_2]$ : triclinic, space group  $P\bar{1}$ ; cell dimensions  $a = 4.216(1) \text{ \AA}$ ,  $b = 11.254(2) \text{ \AA}$ ,  $c = 12.196(2) \text{ \AA}$ ,  $\alpha = 80.34(3)^\circ$ ,  $\beta = 88.44(3)^\circ$ ,  $\gamma = 83.10(3)^\circ$ ;  $V = 566.2(2) \text{ \AA}^3$ ,  $Z = 2$ . Crystal data for  $[\text{IC}_5\text{H}_3\text{NCOOH}]$ : monoclinic, space group  $P2_1/c$ ; cell dimensions  $a = 5.041(1) \text{ \AA}$ ,  $b = 17.313(2) \text{ \AA}$ ,  $c = 8.639(1) \text{ \AA}$ ,  $\beta = 95.042(2)^\circ$ ;  $V = 751.02(13) \text{ \AA}^3$ ,  $Z = 4$ .