

A New (4,8)-Connected 3D Pillar-layered Co(II) Compound: Treatment Activity on Pancreatic Cancer

Dengshun TONG

General Surgery, Soochow University, Suzhou 215006,
Jiangsu, China

SUMMARY. An innovative mixed-ligand compound, as known as $[\text{Co}(\text{L})_{0.5}(\text{bpp})]_n$ (**1**, H_4L = 2,5-bis(3-carboxy-phenyl)benzene-1,4-dicarboxylic acid, bpp = 1,3-bis(4-pyridyl)propane) has been solvothermally created via the self-construction reaction of $\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$, H_4L and bpp . The obtained compound was deeper researched via single crystal X-ray diffraction (SCXR), elemental analysis (EA), and infrared spectroscopy (IS). The compound **1** forms the crystal in the monoclinic $P2_1/c$ space group with the unit cell data of $a = 11.4625(3) \text{ \AA}$, $b = 10.4783(2) \text{ \AA}$, $c = 17.5265(11) \text{ \AA}$, and $\alpha = 90^\circ$, $\beta = 101.214(5)^\circ$, $\gamma = 90^\circ$, $Z = 4$. Dinuclear $[\text{Co}_2(\text{COO})_2]$ subunits are bridged through the L^+ ligands and bpp ligands into a 3-D pillar-layered conformation of **1**, representing a binodal (4,8)-connected topological network. Its application value on the pancreatic cancer was evaluated and the specific principle was studied in the meantime.

RESUMEN. Un innovador compuesto de ligando mixto, conocido como $[\text{Co}(\text{L})_{0.5}(\text{bpp})]_n$ (**1**, H_4L = ácido 2,5-bis(3-carboxifenil)benceno-1,4-dicarboxílico, bpp = 1,3-bis(4-piridil)propano) se ha creado solvotermalmente mediante la reacción de autoconstrucción de $\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$, H_4L y bpp . El compuesto obtenido se investigó en mayor profundidad mediante difracción de rayos X de monocristal (SCXR), análisis elemental (EA) y espectroscopia infrarroja (IS). El compuesto **1** forma el cristal en el grupo espacial monoclinico $P2_1/c$ con los datos de celda unitaria de $a = 11,4625(3) \text{ \AA}$, $b = 10,4783(2) \text{ \AA}$, $c = 17,5265(11) \text{ \AA}$ y $\alpha = 90^\circ$, $\beta = 101,214(5)^\circ$, $\gamma = 90^\circ$, $Z = 4$. Las subunidades dinucleares $[\text{Co}_2(\text{COO})_2]$ están unidas a través de los ligandos L^+ y los ligandos bpp en una conformación tridimensional de **1** en capas de pilares, que representa una Red topológica conectada binodal (4,8). Se evaluó su valor de aplicación en el cáncer de páncreas y mientras tanto se estudió el principio específico.

KEY WORDS: mixed-ligand, pancreatic cancer, SCXR

* Author to whom correspondence should be addressed. E-mail: T_dengshun11@126.com