

Three New Metal-Organic Coordination Complexes: Crystal Structures and Anti-Liver Cancer Activity

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SUMMARY. Three new metal-organic coordination complexes, namely [Ni(2,2'-bipy)₂NO₃](NO₃)(H₂O)₆ (**1**, 2,2'-bipy = 2,2'-bipyridine), [Co(2,2'-bipy)₂]₂(V₆O₁₇) (**2**) and [Cu(4,4'-bipy)Br] (**3**, 4,4'-bipy = 4,4'-bipyridine) have been successfully prepared by using two similar pyridine ligands with different N atoms orientation under different reaction conditions (slow volatilization for **1**, solvothermal for **2** and solvent diffusion for **3**). Their structures have been unambiguously determined by both single-crystal X-ray study and elemental analysis. Additionally, the newly synthesized compounds were evaluated to identify the molecular characteristics contributing to their cytotoxicity. They were tested against three human liver cancer cell lines (SMMC7721, Bel-7402 and MHCC97) with the MTT assay.

RESUMEN. Tres nuevos complejos de coordinación metal-orgánicos, a saber, [Ni (2,2'-bipiridina)₂NO₃](NO₃)(H₂O)₆ (**1**, 2,2'-bipir = 2,2'-bipiridina) [Co(2,2'-bipir)₂]₂(V₆O₁₇) (**2**) y [Cu (4,4'-bipir)Br] (**3**, 4,4'-bipir = 4,4'-bipiridina) han sido exitosamente preparados usando dos ligandos de piridina similares con diferente orientación de los átomos de N, bajo distintas condiciones de reacción (volatilización lenta para **1**, solvotérmica para **2** y difusión de solvente para **3**). Sus estructuras han sido determinadas sin ambigüedades por cristalografía de rayos X de cristal simple y análisis elemental. Además, se han evaluado los compuestos recientemente sintetizados para identificar las características moleculares que contribuyen a su citotoxicidad. Se han probado contra tres líneas celulares cancerosas humanas (SMMC7721, Bel-7402 y MHCC97) con el ensayo MTT.

KEY WORDS: liver cancer cells, metal-organic coordination complexes, single-crystal.

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