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Two New Metal Complexes Based on the Transition of Polyoxometalate: Crystal Structures and Anti-Gastric Cancer Activity

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SUMMARY. In this study, two new metal-organic complexes derived on the basis of polyoxometalate (POM) from 4 distinct ligands which is bis(pyrazine)-bis(amide), to be specific, $\{H_2Zn(bpab)(\beta\text{-}Mo_8O_{26})(H_2O)_2\}\cdot 2H_2O$ (**1**) and $[Zn_2(bmpap)(\beta\text{-}Mo_8O_{26})(H_2O)_4]\cdot 3H_2O$ (**2**) [bpab = N,N'-bis(2-pyrazinecarboxamide)-1,4-butane and bmpap = N,N'-bis(5-methyl-2-pyrazinecarboxamide)-1,3-propane], with the methods of a hydrothermal way, were captured and characterized the diffraction analysis of single-crystal X-ray along with the elemental analysis. In addition to this, the 3-(4,5)-dimethylthiahiazo-(z-y1)-3,5-di-phenytetrazoliumromide (MTT) assay was conducted and the in-tube inhibitory of compounds **1** and **2** against NCI-N87 and CRL-5822 human gastric cancer cells evaluated. The compound showed excellent anti-cancer activity against the human gastric cancer.

RESUMEN. En este estudio, dos nuevos complejos metal-orgánicos derivados sobre la base de polioxometalato (POM) de 4 ligandos distintos, que es bis(pirazina)-bis (amida), para ser específicos, $\{H_2Zn$ (bpab) $(\beta\text{-}Mo_8O_{26})(H_2O)_2\}$ $2H_2O$ (**1**) y $[Zn_2(bmpap)(\beta\text{-}Mo_8O_{26})(H_2O)_4]$ $3H_2O$ (**2**) [bpab = N,N'-bis(2-pirazinacarboxamida)-1,4-butano y bmpap = N,N'-bis(5-metil-2-pirazinacarboxamida)-1,3-propano], con los métodos de forma hidrotermal, fueron capturados y caracterizados por análisis de difracción de rayos X monocristalino junto con el análisis elemental. Además de esto, se realizó el ensayo de 3-(4,5)-dimetiltiahiazo-(z-y1)-3,5-di-fenitetrazolioromida (MTT) y la inhibición en tubo de los compuestos **1** y **2** contra NCI-N87 y células de cáncer gástrico humano CRL-5822 evaluadas. El compuesto mostró una excelente actividad anticancerígena contra el cáncer gástrico humano.

KEY WORDS: coordination complex, human gastric cancer cells, N-donor ligand, polyoxometalate.

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