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Co (II) Coordination Polymer: Treatment Activity on Ulcerative Colitis by Reducing the Inflammatory Response in the Colonic Epithelial Cells

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SUMMARY. A novel coordination polymer (CP), {[Co(L)(dpa)]·(ClO4)} (**1**) (L = 3-carboxy-1-(3-carboxybenzyl)pyridin-1-ium, dpa = 1,2-di(pyridin-4-yl)ethane), was synthesized under hydrothermal conditions by a zwitterionic organic ligand and fully characterized by the elemental analysis along with the single crystal X-ray diffraction. The compound was used for ulcerative colitis rat treatment for the evaluation of pharmacological activity. Firstly, the ELISA was performed to detect the content of TNF-α and SOD released from the colon tissue. And then the western blot was conducted to determine the activation level of the JAK2/STAT3 signaling pathway. Molecular docking was performed to predict the potential binding modes between the compound and JAK2, which indicated important interactions in the ligand binding site.

RESUMEN. Un nuevo polímero de coordinación (CP), {[Co(L)(dpa)] (ClO4)} (**1**) (L = 3-carboxi-1- (3-carboxibencil) piridin-1-ium, dpa = 1, 2-di (piridin-4-il) etano), se sintetizó en condiciones hidrotermales mediante un ligando orgánico zwitteriónico y se caracterizó completamente por análisis elemental junto con difracción de rayos X de cristal único. El compuesto se usó para para la evaluación de la actividad farmacológica del tratamiento de colitis ulcerosa en ratas. En primer lugar, se realizó ELISA para detectar el contenido de TNF-α y SOD liberados del tejido del colon. Luego se realizó la transferencia Western para determinar el nivel de activación de la ruta de señalización JAK2/STAT3. El acoplamiento molecular se realizó para predecir los posibles modos de unión entre el compuesto y JAK2, lo que indicó interacciones importantes en el sitio de unión del ligando.

KEY WORDS: Co(II)-coordination complex, ulcerative colitis X-ray diffraction

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