



A New Zinc(II) 1D Chain Complex: Crystal Structure and Treatment Effect on Infection After Oral Implant Restoration

Xien FENG

*Medical School of Dalian University,
Dalian, Liaoning, China*

SUMMARY. A Zn(II) coordination polymer, that is, $[\text{Zn}(\text{Hpzdc})(\text{phen})]_n$ (1) was produced through the reaction between 1,10-phenanthroline (phen), pyrazole-3,5-dicarboxylic acid (Hpzdc), and zinc(II) salt at ambient temperature. Its application values on the infection after oral implant restoration were examined and the relevant mechanism was tested in meantime. At first, the inflammatory cytokines created in the process of the infection after oral implant restoration was measured with ELISA assay. In addition to this, the as-produced inhibitory activity against the *Porphyria bacillus* survival genes was investigated through real time RT-PCR. Molecular docking simulation pointed out that multiple binding interactions were formed towards the probe protein, indicating that the Zn complex has good biological activity.

RESUMEN. Se produjo un polímero de coordinación de Zn(II), es decir, $[\text{Zn}(\text{Hpzdc})(\text{phen})]_n$ (1) mediante la reacción entre 1,10-fenantrolina (phen), ácido pirazol-3,5-dicarboxílico (H3pzdc) y sal de zinc (II) a temperatura ambiente. Se examinaron sus valores de aplicación sobre la infección después de la restauración de implantes orales y mientras tanto se probó el mecanismo relevante. Al principio, las citoquinas inflamatorias creadas en el proceso de infección después de la restauración del implante oral se midieron con un ensayo ELISA. Además de esto, se investigó mediante RT-PCR en tiempo real la actividad inhibidora producida contra los genes de supervivencia del bacilo de *Porphyria*. La simulación de acoplamiento molecular señaló que se formaron múltiples interacciones de unión hacia la proteína sonda, lo que indica que el complejo de Zn tiene buena actividad biológica.

KEY WORDS: Coordination polymer, infection, oral implant restoration

* Author to whom correspondence should be addressed. *E-mail:* xien_feng11@126.com