

0D/2D Co(II)-Bearing Coordination Complexes: Treatment Activity on Postoperative Cognitive Dysfunction after Anesthesia Surgery

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SUMMARY. In the present study, two coordination complexes, namely [Co(L)₂(DNSA)] (**1**, 1,4-bdc is 1,4-benzenedicarboxylic acid and H₂DNSA is 3,5-dinitro-salicylic acid) and [Co(L)(1,4-bdc)]_n (**2**), containing Co(II) ions as nodes have been generated in success under the hydrothermal conditions via the reaction between 1,10-phenanthroline derivative 2-(2-fluorophenyl)-1H-imidazo[4,5-f][1,10]phenanthroline (L) and Co(NO₃)₂·6H₂O in the presence of different carboxylic acid ligand. The application values of prepared coordination complexes on the postoperative cognitive dysfunction were explored and the corresponding mechanism was studied simultaneously. At first, the ELISA detection was completed in our experiment for the determination of the GABA content in the brain after compound treatment. Moreover, the GABAA receptor relative expression levels were detected through exploiting the real time RT-PCR assay.

RESUMEN. En el presente estudio, dos complejos de coordinación, a saber [Co(L)₂(DNSA)] (**1**, 1,4-bdc es ácido 1,4-benzenodicarboxílico y H₂DNSA es ácido 3,5-dinitro-salicílico) y [Co(L)(1,4-bdc)]_n (**2**), que contiene iones Co(II) como nodos, se han generado con éxito en condiciones hidrotermales mediante la reacción entre el derivado de 1,10-fenantrolina 2-(2-fluorofenil)-1H-imidazo [4,5-f][1,10] fenantrolina (L) y Co(NO₃)₂·6H₂O en presencia de diferentes ligandos de ácido carboxílico. Se exploraron los valores de aplicación de los complejos de coordinación preparados sobre la disfunción cognitiva posoperatoria y se estudió el mecanismo correspondiente simultáneamente. Al principio, la detección de ELISA se completó en nuestro experimento para la determinación del contenido de GABA en el cerebro después del tratamiento con el compuesto. Además, los niveles de expresión relativa del receptor GABAA se detectaron mediante la explotación del ensayo de RT-PCR en tiempo real.

KEY WORDS: anesthesia surgery, cognitive dysfunction, coordination complex.

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