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(Hlorofenil)terpiridin Ru(II) kompleksi: Sinteza, kinetika supstitucionih reakcija sa biomolekulima i interakcije sa DNA i BSA

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Sa ciljem da ispitamo uticaj aromatičnosti helatnih liganada na reaktivnost Ru(II) polipiridil kompleksa, sintetisali smo dva nova Ru(II) kompleksa [Ru(Cl-Ph-tpy)(phen)Cl]Cl (**1**) i [Ru(Cl-Ph-tpy)(*o*-bqdi)Cl]Cl (**2**) (gde je phen = 1,10-fenantrolin i *o*-bqdi = *o*-benzohinondiimin).[1] Kompleksi su okarakterisani pomoću elementalne analize i različitih spektroskopskih metoda, kao što su IR, UV-Vis i (1D i 2D) NMR, dok je njihova molekulska struktura u čvrstom stanju utvrđena pomoću rendgenske strukturne analize. Kinetika i mehanizam reakcije kompleksa **1** i **2** sa biološki relevantnim ligandom 5'-GMP ispitivani su pomoću UV-Vis spektroskopije. Proučavane su interakcije kompleksa sa CT DNA, kao i kompetitivne reakcije interkalirajućeg agensa etidijum bromida (EB). Pored toga, ispitivan je afinitet kompleksa prema goveđem serum albuminu (BSA), i određene su konstante vezivanja.

(Chlorophenyl)terpyridine Ru(II) complexes: Synthesis, kinetics of the substitution reactions with small biomoleculs and DNA/BSA binding studies

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In order to gain more insight into the influence of chelating ligand's aromaticity on the reactivity of Ru(II) polypyridyl complexes, we synthesized two new Ru(II) complexes [Ru(Cl-Ph-tpy)(phen)Cl]Cl (**1**) and [Ru(Cl-Ph-tpy)(*o*-bqdi)Cl]Cl (**2**) (where phen = 1,10-phenanthroline and *o*-bqdi = *o*-benzoquinonediimine).[1] The new complexes were fully characterized by elemental analysis and various spectroscopic techniques, such as IR, UV-Vis and (1D and 2D) NMR, whereas their molecular structure in solid state was determined by single crystal X-ray diffraction analysis. The kinetics and the mechanism of the reaction of complexes **1** and **2** with the biologically more relevant 5'-GMP ligand were studied by UV-Vis spectroscopy. The interaction of complexes **1** and **2** with CT DNA was studied, and a competitive study of the intercalative agent ethidium bromide (EB) was performed. Furthermore, the affinity toward bovine serum albumin (BSA) was investigated, and their binding constants were determined.

Navedeno istraživanje je finansijski pomoglo Ministarstvo prosvete, nauke i tehnološkog razvoja projekat broj 172011.

1. P. Čanović, A. Rilak Simović, S. Radisavljević, I. Bratsos, N. Demitri, M. Mitrović, I. Zelen, Ž.D. Bugarčić, *J. Biol. Inorg. Chem.,* 22 (2017) 1007-1028.