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Novi zlato(III) kompleksi: Sinteza, karakterizacija i ispitivanje interakcija sa 5'-GMP, GSH i L-Met

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Farmakološke karakteristike kompleksa zlata poznate su još od kraja 19. veka. Ova jedinjenja najčešće su korišćena u lečenju reumatoidnog artritisa. Poslednjih decenija kompleksi zlata su ispitivani zbog raznolikosti primene, koja pre svega obuhvata upotrebu kao potencijalnih antikancerogenih i hemioterapeutskih agenasa.[1] Zlato(III) kompleksi zbog sličnosti sa kompleksima platine, su pokazali obećavajuće antikancerogene, citotoksične i antitumorske karakteristike.[2] U okviru ovog istraživanja sintetisana su dva nova zlato(III) kompleksa opšte formule [Au(N-N)Cl_2], gde je *N-N* bidentatni ligand (4,7-difenil fenantrolin ili 2,9-dimetil fenantrolin). Pomenuti kompleksi su okarakterisani spektroskopskim tehnikama (IR, UV-Vis, ^{1}H NMR). Ispitivana je kinetika supstitucionih reakcija ovih kompleksa sa biološki važnim ligandima kao što su guanozin-5'-monofosfat (5'-GMP), glutationa (GSH) i L-metionin (L-Met), korišćenjem stopped-flow uređaja. Takođe, ispitivane su interakcije kompleksa i DNK pomoću UV-Vis spektrofotometrije, fluorescentne spektroskopije i na osnovu promene viskoziteta. Istovremeno, kao i interakcije sa govođim serum albuminom (BSA).

New gold(III) complexes: Synthesis, characterization and study of their interactions with 5'-GMP, GSH and Met

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The pharmacologic properties of gold compounds have been known since the end of 19th century. They have been used for different studies, even though they are usually used for the treatment of rheumatoid arthritis. In the last decade gold complexes have received increased attention due to the variety of their applications. Primary, they have been investigated as potential anticancer and chemotherapeutic agents.[1] It is well known that gold(III) complexes are very similar to platinum(II) compounds, so they could exhibit prospective anticancer, cytotoxic and antitumor properties.[2] In this study we have synthesized two new gold(III) complexes with general formula [Au(N-N)Cl_2] in which *N-N* is a bidentate ligand (4,7-diphenyl-1,10-phenanthroline and 2,9-dimethyl-1,10-phenanthroline). These complexes were characterized by spectroscopic techniques (IR, UV-Vis, ^{1}H NMR). Kinetic of the substitution reactions between complexes and biological important molecules, such as guanosine-5'-monophosphate (5'-GMP), glutathione (GSH) and L-methionine (L-Met), were performed by stopped-flow technique. Also, we performed DNA binding studies using UV-Vis spectrophotometry, fluorescence spectroscopy and viscosity measurements, as like as interaction with bovine serum albumine (BSA).

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