

Studies on the Complexation of Platinum(II) by Some 4-Nitroisoxazoles and Testing the Cytotoxic Activity of the Resulting Complexes

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Streszczenie

Two novel platinum(II) complexes (**1** and **2**) were synthesized by the reaction of the appropriate 3,5-dimethyl-4-nitroisoxazole with K_2PtCl_4 and characterized by elemental analysis, ESI MS spectrometry, 1H NMR and far-IR spectroscopy. The structure of trans complex **2** was additionally confirmed by X-ray diffraction. The cytotoxicity of the investigated compounds was examined in vitro on three human cancer cell lines (MCF-7 breast, ES-2 ovarian and A-549 lung adenocarcinomas) in both normoxia and hypoxia conditions. LogPs of complexes were measured using the shake-flask method. The trans complex **2** showed much better cytotoxic activity than cisplatin for all the tested cancer cell lines. Cis complex **1** was inferior to its trans isomer against all the cancer lines tested in normoxia conditions but proved superior to the reference cisplatin against the MCF-7 and A549 lines, and showed similar activity to cisplatin against the ES-2 line. To gain additional information that may facilitate the explanation of the pharmacological activity of the tested compounds, cellular platinum uptake and stability in L-glutathione solution were determined for both compounds **1** and **2**.

Słowa kluczowe

4-nitroisoxazoles-Pt(II) complexes, synthesis, structural analysis, LogP, cellular platinum uptake, cytotoxic activity, normoxia, hypoxia, L-glutathione (GSH), X-ray crystallography

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