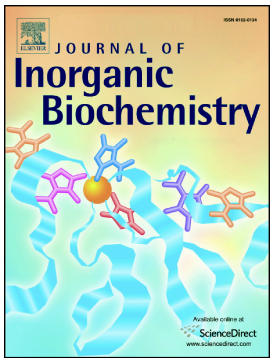

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Synthesis and biological characterization of organoruthenium complexes with 8-hydroxyquinolines

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Abstract

In this study we report the synthesis, characterization and a thorough biological evaluation of twelve organoruthenium–8-hydroxyquinolinato (**Ru-hq**) complexes. The chosen **hqH** ligands bear various halogen atoms in different positions which enables to study effect of the substituents on physico-chemical and biological properties. The determined crystal structures of novel complexes expectedly show the cymene ring, a bidentately coordinated deprotonated **hq** and a halide ligand (chlorido or iodido) coordinated to the ruthenium central ion. In previous studies the anticancer potential of organoruthenium complex with 8-hydroxyquinoline ligand clioquinol was well established and we have decided to perform an extended biological evaluation (antibacterial and antitumor activity) of the whole series of halo-substituted analogs. Beside the cytotoxic potential of studied compounds also the effect of two selected complexes (**9** and **10**) on apoptosis induction in MG-63 and A549 cells was also studied via externalization of phosphatidylserine at the outer plasma membrane leaflet. Both selected complexes that gave best preliminary cytotoxicity results contain bromo substituted **hq** ligands. Apoptosis induction results are in agreement with the cell viability assays suggesting the higher and more selective anticancer activity of complex **10** in comparison to complex **9** on MG-63 cells.