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ABSTRACTS

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P14: Synthesis of New Pd(II) Complexes Bearing Organoselenium Ligands and Evaluation of Cytotoxic, Antimicrobial, Antioxidant Activity and DNA-binding studies

Vera M. Divac[1], Angelina Z. Petrović[1], Kristina Z. Mihajlović[1], Jovana Bogojeski[1], Marina D. Kostić[1], Marko N. Živanović[2]

***veradivac@kg.ac.rs**

[1] *University of Kragujevac, Faculty of Science, Department of Chemistry, Radoja Domanovića 12, 34000 Kragujevac, Serbia*

[2] *University of Kragujevac, Faculty of Science, Department of Biology and Ecology, Radoja Domanovića 12, 34000 Kragujevac, Serbia.*

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ABSTRACT

The potential utility of organoselenium compounds in pharmacy and medicine has been subject of many studies performed during past years. In addition to their important application in synthetic purposes, organoselenium compounds have also demonstrated ability to act as antioxidant, anti-inflammatory, neuroprotection, chemotherapeutic and chemopreventive agents.1, 2 Coordination of organoselenium compounds to transition metals provides very interesting pharmacological properties which arouses an interest for further research in that area.3 In this study, we have examined biological activity of 3 newly synthesized Pd(II) complexes bearing organoselenium ligands (Figure 1) through the antimicrobial, antibiofilm, antioxidant activity parallel with DNA and BSA-binding ability. The antibacterial activity of Pd(II) complexes was tested against 18 strains of bacteria determining the minimal inhibitory concentration (MIC) and the minimal bactericidal concentration (MBC) using microdilution method. The influence on bacterial biofilm formation was determined by tissue culture plate method. Antioxidant activity was evaluated as DPPH radicals scavenging activity expressed as the EC50 values. Overall, the investigated complexes exhibited good to moderate activity. Furthermore, the interaction of metal complexes to calf thymus DNA (CT-DNA) and bovine serum albumin (BSA) was examined. Overall, the studied complexes exhibited good DNA and BSA interaction ability. All obtained results in this study indicate that the introduction of these types of ligands can be used to improve the reactivity of Pd(II) complexes. In addition the potential cytotoxicity of investigated complexes was tested by MTT assay on HCT-116 cell line. Together, these observations show the reactivity characteristics needed for a potential anti-tumor agent. Prominent results obtained in the evaluation of cytotoxic activity of these 3 complexes gave a rise for the further research on their anti-tumor activities.

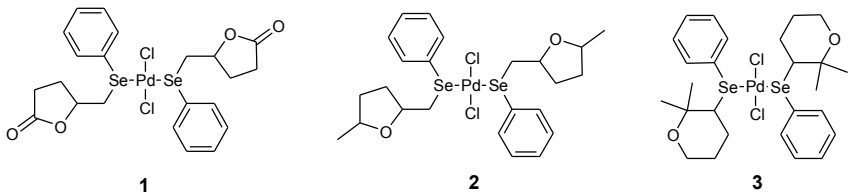

Figure 1. Structures of investigated complexes.

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