Interaction of transition metal complexes containing a novel guanine-based 2-hydrazido-4(3H)-quinazolinone derivative with DNA

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DNA is recognized as one of the common biological targets of anticancer drugs, since one of the main mechanisms of action of the anticancer drugs it the damage of DNA. DNA-binding is usually studied as a preliminary therapeutic approach to cancer treatment, since DNA is altered in cancer cell due to mutations, the life-cycle of DNA in cancer cells is different from that in normal cells and additional DNA-damages may arise in cancer cells due to faster replication and the lack of repair mechanisms in cancer cells [1].
The interaction mode of metal complexes to DNA depends on the structure of the complexes and their stability. Metal complexes may bind to DNA covalently or they may interact noncovalently (*via* intercalation, groove-binding or electrostatically) and/or may induce DNA-cleavage [2]. In addition, DNA-binding is usually important in the case of photodynamic therapy [3].
Within this context, we present herein the interaction of copper(II), nickel(II) and zinc(II) complexes with a novel pyridine-hydrazido derivative of guanine-based quinazolinone as ligand with calf-thymus DNA (monitored by UV-vis spectroscopy, viscosity measurements and EB-displacement studies) and plasmid pBR322 DNA (studied by agarose gel electrophoresis upon photoactivation).

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