

Morphology

Effect of Nickel (II) Complexes with Mannich Bases on Viability and Proliferation of Human Cancer Cells

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The aim of our study was to evaluate the influence of four nickel (II) complexes with ligands containing the antipyrine moiety N,N'-bis(4-antipyrilmethyl)-piperazine (BAMP) or N,N'-tetra-(antipyril-1-methyl)-1,2-diaminoethane (TAMEN) on viability and proliferation of cultured human cancer cells. The following permanent cell lines were used as model systems: MCF-7 (luminal A type breast cancer), SK-BR-3 (Her2 - positive breast cancer), Caco-2 (colorectal adenocarcinoma), HepG2 (hepatocellular cancer), 8MGBA (glioblastoma multiforme). The investigations were performed by MTT test and neutral red uptake cytotoxicity assay (in short-term experiments, 24-72h, with monolayer cultures) and colony-forming method (in long-term experiments, 20 days, with 3D cancer cell colonies). The results obtained reveal that applied at a concentration range of 1 - 200 µg/ml Ni₃(BAMP)(CH₃COO)₄ and Ni₂(BAMP)(Cl)₄ are more pronounced cytotoxic agents as compared to Ni(TAMEN)(ClO₄)₂ and Ni(TAMEN)(NCS)₂. Both ligands (BAMP, TAMEN) do not significantly decrease viability and proliferation of the treated cells

Key words: mannich bases, nickel, polynuclear complexes, cytotoxic activity, human cancer cell lines