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Synthesis of novel agents-Effective on leukemia and colon cancer cell lines

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For cancer development an alteration of multi-genetic and epigenetic molecular events is required. Therefore, it seems very difficult to prevent cancer using some compounds. Expectation from such compounds is to arrest or reverse carcinogenic changes before the appearance of malignancy. A great quantity of new techniques facilitates the fast and simultaneous screening of various novel compounds for their antitumor activities at molecular and biochemical levels. The structures of the compounds are important by exhibiting their anti-tumoral activity. It has been identified some structural requirements for the anti-tumoral activity. Based on literature knowledge thiosemicarbazones and their complexes can arrest the cell cycle and some of them are very effective when compared with known chemotherapeutic agents. At this point in our work, screening for activity of some novel compounds is very important for cancer therapy. Several research groups actively synthesize active compounds and carry out pharmacological studies. In this work, we present the synthesis and characterization of novel thiosemicarbazone derivatives and their Ni(II), Cu(II) and Co(II) complexes of these materials. All of the synthesized complexes were tested against two human cancer cell line (HL-60 and HT-29) for their anti-proliferative and apoptotic feature. These complexes were found to be potent anticancer agents with concentrations that inhibited 50% of proliferation (IpC50) between 5 μ M and 40 μ M. These results afford for a path further research on pharmacological studies on how can these ligands and their complexes can be used for developing some new drugs and how they affect the cell cycle.

Biography

Ilknur Babahan received PhD degree in Organic Chemistry from Ege University, Izmir, Turkey. Since 2008, she has been a faculty member at Adnan Menderes University in Aydin, Turkey. Her main areas of research interest are organic synthesis, organometallic chemistry and medicinal chemistry. Her current research interests include design and synthesis of novel ligands and their metal complexes which may be used as "smart medicine" in cancer therapy.

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