

## SYNTHESIS AND ANTIPROLIFERATIVE ACTIVITY OF THIOSEMICARBAZONE AND 4-PYRIDIN-2-YL THIOSEMICARBAZONE OF FLUORENE-9-ONE AND THEIR COORDINATION COMPOUNDS

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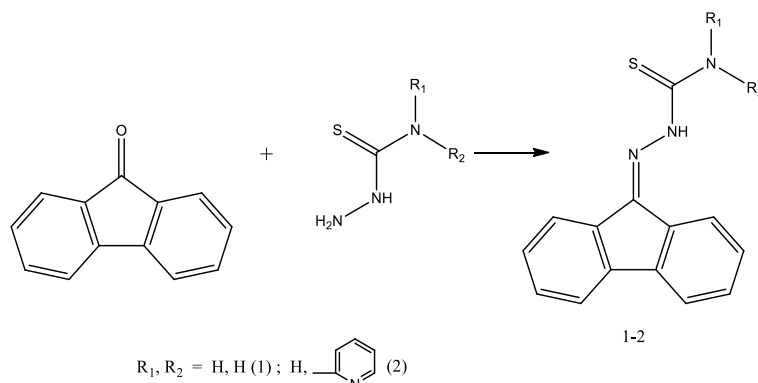
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It's known that coordination compounds of thiosemicarbazones with transition metals exhibit a number of important biological activities such as antibacterial, antifungal, antiviral and antitumor activities. It is very important to study and discover the mechanism of interaction between antiproliferative agent and DNA in the cancer cells. This monitoring is possible to realise using anticancer molecules which have fluorescent properties

Researchers are trying to monitor the location of these compounds by developing fluorescent analogues to probe their behaviour in cells[1], including cancer cells. This compounds are as potential anti tumour imaging agents[2]. This kind of coordination compounds are obtained by addition of a fluorophore molecule to the initial thiosemicarbazide for further investigations by fluorescent methods.

In our case we have obtained two thiosemicarbazones according the method of condensation reaction of a thiosemicarbazide or a derivative of thiosemicarbazide with fluorophore fluoren-9-one:



Thiosemicarbazones were prepared by the following way: equivalent parts of ketone and thiosemicarbazide were added to the reaction mixture which contained alcohol and a few drops of glacial acetic acid and then refluxed under heating for 2 hours then cooled products were filtered and washed with cold ethanol. A small amount of products were also isolated from the filtrate after concentration of the solution. Thiosemicarbazones yield were between 80-95%. The final products were analyzed by NMR Spectroscopy

Structure of 2-(9H-fluoren-9-ylidene)hydrazinecarbothioamide was confirmed by NMR spectra investigations in DMSO-d<sub>6</sub>. The <sup>1</sup>H NMR spectra, chemical shifts, ppm: 7.34, 7.42, 7.82, 8.45, 7.36, 7.44, 7.89, 8.06(aromatic, rings), 8.45 (S, 1H, NH<sub>2</sub>); 8.76 (s, 1H, NH<sub>2</sub>), 10.86(s, 1H, NH) The <sup>13</sup>C NMR spectra, ppm: 120.66, 121.16, 122.86, 127.67, 128.54, 128.58, 129.57, 130.74, 131.76, 137.08, 139.81, 141.90(12 C, aromatic rings) 145.95(C=N); 180.6(C=S).

Some coordinative compounds of Cu (II), Co (II), Ni (II) were obtained and their antiproliferative activity on HeLa cervical cancer cells was investigated.

### References:

1. J. Chan, A. L. Thompson, M. W. Jones and J. Peach, *Inorg. Chim. Acta*, 2010, 363, 1140
2. L. Wei, J. Easmon, R. K. Nagi, B. D. Meugge, L. A. Meyer, and J. S. Lewis, *J. Nucl. Med.*, 2006, 7, 2034