

## Synthesis and characterization radiosensitizing effect of 2, 4-dinitrophenylamine tethered 5-fluorouracil

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The radiosensitizer are compounds which increase effects of radiation. These compounds form free radicals upon interaction with radiation and resulting radicals react with different component observe and damage cell functions. This mechanism action is very important for to more cells which are hypoxic because in normal cells radical chain reaction occur throw reaction of radiation with oxygen.

The Purpose of this study was to synthesize the 2, 4-dinitrophenylamine tethered 5-fluorouracil (I) which has shown rediosensytizing activity and minimum toxic effects on normal cells and to determine their rediosensitizing activity on hypoxic cells. This compound was prepared by alkylation of 2, 4-di-nitroaniline (II) with 1, 3-dibromopropane (III) and 1,2-dibromoethan (IV) and followed by the reaction of the resulting compounds with N1-Boc-5-flourouracill and then removable of the protecting group. The cytotoxic effect and radiosensitizing activity of the synthesize compounds (2-200  $\mu$ M) on HT29 cells was determined in normal and hypoxic cells upon irradiation with gamma ray (60Co, 2-12 Gy) was determined by MTT test. The results of the investigations showed that compounds have low toxicity on the normal cells and have radiosensitizing effects on hypoxic cells after irradiation (SER = 1.7- 1.9).

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