SYNTHESIS AND EVALUATION OF ANTI-CANCER ACTIVITY ON HUMAN BREAST CANCER CELL LINE MFC7 OF SOME NOVEL THIAZOLIDINO (3,2-B) -1, 2,4-TRIAZOLE-5(6H)-ONE DERIVATIVES.

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I. INTRODUCTION

Thiazolidine and Triazole derivatives having the number of biological activities,These potential activities promted to fuse both the nucleus and Synthesis Some novel Thiazolidino (3,2-b) -1, 2,4-Triazole-5(6H)-one derivatives.

II. OBJECTIVES

The present study was aimed to synthesise some novel thiazolidino-(3,2-b) -1, 2,4-triazole-5(6H)-one derivatives and their evaluation for possible anticancer activity.

III. MATERIALS AND METHODS

In the present study some novel thiazolidino-(3,2-b)-1,2,4-triazole-5(6H)-one derivatives were synthesized in three steps reactions as per the method described by Tozkoparan. et al., was followed and evaluated for anticancer activity on human breast cancer cell line MFC7. Synthesis of 1-acyl semicarbazide (I), Synthesis of 3-aryl-5-mercapto-***1,2,4-triazole*** (II) and Synthesis of final compounds (Thiazolidino- (3,2-b) -1, 2,4-triazole-5(6H)-one, III). The purity of the synthesized compounds were determined by TLC method using silica gel G. Structures of the synthesized compounds were confirmed on the basis of IR, NMR, Mass, carbon, hydrogen and nitrogen analysis. All the synthesized compounds were tested against human breast cancer cell line MFC7 for anticancer activity and compared with the standard drug adriamycin (ADR, positive control). Cytotoxicity was measured using sulforhodamine B (SRB) assay, briefly the cells (1.9×10^4) were seeded in each well containing 0.1ml of trypan blue medium in 96 well plates. After 24hrs, different test concentration were added and cell viability was assessed after two days. 100 μg/ml TCA was added to the wells. The plates were incubated at 37 ^{0}C for additional 4 hrs. Added 100 μg of 0.57% SRB solution to each well and rinsed with the acetic acid. The medium was discarded and the trypan blue, which formed in the cells was dissolved with 100 ug/ml of DMSO. The rate of colour production was measured at 510 nm in a microplate reader of spectroscopy .The IC_{50}were calculated using the respective regression equation.

IV. RESULTS

In the synthesized compounds, few were found active against human breast cancer cell line MFC7 and showed significant decrease in cell viability with reference to standard. The compound A_6 showed highest activity.

CONCLUSION

The nitro-substituted compound showed best anticancer activity than methoxy and hydroxy substituted compounds. It is assumed that activity was due to the triazole and thiazolidinone hetero nucleus present in the structure.

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