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ANTICANCER ACTIVITY OF SOME SCHIFF'S BASES COMPOUNDS DERIVED FROM 1,4-PHENYLENDIAMINE IN CELL LINE

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ABSTRACT : This paper reported five of novel Schiff's bases compounds [VIII]n where (n = 1, 2, 3, 5, 6) this compounds which contains 1,2,3-triazole hybrids were derived from 1,4-phenylendiamine by a series of steps. The chemical structures of the new synthesized compounds were characterized by FTIR, ^{1}H NMR and then it was evaluated at different concentrations to evaluate its inhibitory effectiveness potency against two selected human cancer cell lines (HepG2, Hella). Most of the synthesized compounds demonstrated inhabtion the cell line growth depend the concentration and the day, but not effect to the normal cell line RD in the same concentration.

Key words : Schiff bases, triazole, anticancer activity, cell line.

INTRODUCTION

Heterocyclic compounds often have different pharmacological properties, For example, fluconazole (Tsukuda *et al*, 1998), itraconazole (Wei *et al*, 2007), ravuconazole (Kim *et al*, 2008), voriconazole (Lin *et al*, 2008) and posaconazole (Nagappan and Deresinski, 2007) are used as antifungal drugs in medicine. Furthermore, vorozole, letrozole and anastrozole are very effective aromatase inhibitors and are used in the treatment of breast cancer (Clemons *et al*, 2004). Recently, a combination of benzothiazole and 1,2,3-triazole moieties has received great attention in improving the effectiveness of bioactive molecules with anticancer activity (Kumbhare *et al*, 2014, 2015). Also, it is known that certain Schiff base derivatives bearing 1,2,4-triazole ring have important pharmacological properties such as antimicrobial (Sumangala *et al*, 2013), hypoglycemic (Aswathanarayanappa *et al*, 2014), anti-inflammatory (Sachdeva *et al*, 2013), paclitaxelandvincristine are microtubular toxins of chemically similar nature that disrupt microtubule function by binding to a site ontubulin and suppressing microtubule (Sondhi *et al*, 2012). Although, they are closely related in chemical and physical properties, they have various effects on the human bodyanticancer (Sondhi *et al*, 2012), fungicidal (Sun *et al*, 2010) and antiproliferative. This action is similar to the action of colchicine, but is different from that of, vinblastine which promotes the polymerization of polymers tubulin to form abnormal microtubule structures (Basavapatna *et al*, 2013) activities. Our target in the present study synthesis five new compounds $[VIII]_n$ according to synthetic pathway as shown in (scheme 1), then three of them were selected to examine their biological activity on human cancer cell lines.

MATERIALS AND METHODS

Cell line

In this experiments, the stable cell line of HepG2, Hella and RD cell was used cell line were obtained from the Department of Biology, Faculty of Medicine, Iraqi center for genetics and medical medicine. The cell line were grown on uncoated cover slips in a Minimal Dulbecco's 1 Medium (DMEM) Essentia with 10 fetal bovine serum (PAA), 2 µM glutamine (PAA), 100 µ/ml pen. and 100 ìg/ml strep.

Exposure to chemicals compounds

The investigate the action of chemicals compounds onto the microtubule, a solution containing (15.25, 31, 62, 125, 250, 500, 1000, 2000, 4000 µg/ml) final concentration of chemicals compounds Schiff's bases [VIII]n, where (n = 1, 3, 6).

Chemistry part

All chemicals and solvents used in the chemistry part were purchased from a number of different companies such as Merck, BDH, Sigma Aldrich and Fulka. They