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SYNTHESIS OF SOME NEW HETEROCYCLIC COMPOUNDS DERIVED FROM 2-(ACETOHYDRAZYL) BENZO[D] ISOTHIAZOLE-3(2H)-ONE -1,1-DIOXIDE AND STUDY THEIR BIOLOGICAL ACTIVITY

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ABSTRACT : Different new compounds derived from N-(2-chloroacetyl) saccharin (1) as starting material were synthesized.Reactionof compound (1) with chloroacetylchloride gave compound (N-(aminoglycyl) saccharin) (2). The cyclization of prepared Schiff-bases (3a-d) with sodium azide gave the corresponding tetrazole derivatives (4a-c).Cyclicimide derivatives (5a-c) were prepared from reaction of compound (2) with succinic acid, maleic acid and phathalic acid.N-[N'(2-oxoethyl) saccharin]-2-chloroacetohydrazide(6) was obtained by reaction of chloroacetylchloride with compound(2), then compound (6) reaction with thiourea and urea give thiazole(7) and oxazole (8) compounds respectively. Schiff-bases (9a-d) and (10a-d) were obtained via condensation of (7) and (8) with some aromatic aldehyde such as: 4-hydroxy benzaldehyde, 4- di methyl amino benzaldehyde, 2,4-dimethoxybenzaldehde, 4-methoxybenzaldehyde. The cyclization of compound (11) with p-bromophenacylbromide and p-phenylphenacylbromide gave the corresponding oxazoline(12a,b). N-[(3-proprgel) aminoglycyl]saccharine(13) was prepared by reaction of compound(2) with proprgyl chloride. 1,4-disubstuted triazole derivatives (15a-d) were prepared via click reaction of compound(13) with some azide in presence of sodium ascorbate and $CuSO_4.5H_2O$. The structures of new compounds are supported by FT-IR, ^{1}H-NMR and ^{13}C-NMR, and then study antimicrobial activity.

Key words : Tetrazole, triazoles, thiazole,oxazole, cyclicimide, click reaction.

INTRODUCTION

Tetrazole is a heterocyclic compound with five-memebered ring that consists of four nitrogen and one carbon atoms (Mohite and Bhaskar, 2011). Tetrazole-ring systems have a variety application in agriculture, coordination chemistry, photographic industry, organic chemistry, specifically in medicinal chemistry and explosive (Ali and Afshin, 2015).

Click is an idiom that points out to an efficient and selective chemical procedure, which eventually produce a single reaction product and can be used in environmental friendly synthesis. It also can be used in physiological state and for tailoring of functional molecules like polysaccharides, nucleic acid and peptides due to its chemo-selectivity property (Lutz and Zarafshani, 2008; Mahdi, 2015).

1,2,3-Triazoles are facilely synthesized and accessibly obtained; therefore these compounds have acquired wider alertness not only in organic chemistry but, also in medicinal chemistry (Rama *et al*, 2016). Triazoles are found to be anti-inflammatory (Navabeh *et al*, 2017), potent anti-microbial (Nimisha *et al*, 2010), anti-malarial (Wenqiang *et al*, 2016), anti-viral agents (Ying-Chun *et al*, 2014).

Schiff's bases have variety significance in both, the pharmaceutical and medicinal fields given their commonly used in organic synthetic intermediates (Yusra *et al*, 2015). Thiazole and oxazole derivatives are an important class of hetero cyclic, which has broad range of biological activities, such as antihistaminic (Chawla *et al*, 2014), antiparasitic (Desai *et al*, 2012), antipyretic (Elzbieta and Grazyna, 2006), antimicrobial (Hitendra *et al*, 2008), antiviral properties (Desai *et al*, 2012), analgesic, anti-inflammatory and anti-bacterial (Jose *et al*, 2011).

MATERIALS AND METHODS

All chemicals were purchased from Fluka, melting points were recorder using electrothermal melting point apparatus. Fourier transform infrared (FT-IR) spectrum was run on a Shimadzu FT-IR-8400S spectrophotometer. Nuclear magnetic resonance (^{1}H-NMR and 13C-NMR)