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RESEARCH ARTICLE

New Heterocyclic Schiff Base and Azetidinone as Antibacterial Agents

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ABSTRACT:
This work involves review about hetero cyclic compounds, various memberd rings (three, four, five, six, seven, eight)-memberd rings, review about biological activity, stability, synthesis, reactions of various rings, hetero atoms and hetero cyclic compounds.

KEYWORDS: Various memberd, hetero atom, review heterocycle,lactame

INTRODUCTION:
The chemistry of Schiff base plays a vital role in the progress of chemistry science[1,2], synthesis of Schiff base through classical condensation of aldehydes (or ketone) and imines were pursued[3,4]. Schiff base are characterized by the N=CH- (imine) group which is important in elucidating the mechanism of transformation in biological systems. Due to great flexibility and diverse structural aspects, wide range of Schiff bases have been synthesized and their complexion behavior was studied[5]. Furthermore, Schiff base are reported to show a variety of interesting biological activities, including antibacterial[6], antifungal[7], anticancer[8,,9], and herbicidal activities[10].

2-Azetidinone compounds are characterized by the ring system (amide)[11]. These compounds are shown to possess make biological activities[12-15]. 2-Azetidinone has been synthesized by the condensation of chloroacetyl chloride with Schiff base, the compound has been characterized on the base of analytical and spectral data. It has been screened of antibacterial activity against staphylococcus and E.coli .

EXPERIMENTAL:
Melting point were determined in Gallen Kamp melting point apparatus and were uncorrected, Elemental analysis (CHN) were recorded in EA300 Euro-Vector in University of Al-albyat in Jordon. FT-IR Spectra were recorded on Shimadzu FT-IR 8400 Fourier Transformer infrared as KBr disk. Ultraviolet spectra were recorded in spectro scan 80 in the wave length 200-800 nm. ^{1}HNMR and ^{13}CNMR spectra were recorded on Brucker spctrospin ultra shield magnets 400MHz instrument using tetramethyl silane (TMS) as an internal standard and DMSO-d_6 as a solvent in university of Tabriz-Iran. Thin layer chromatography were performed on pre-coated sheets with 0.25 mm layer of Slica Gel GF254 of the Merck company.

Synthesis of Compounds:

Synthesis of 2-methyl-5-nitro-1-ethyl bromide imidazole (A)

A mixture of (1mmole,1.57gm) from metronidazole in 20ml ethanol and (1mmole, 1.18gm) of potassium bromide in 20ml water, then added 10ml of 10% sulphuric acid and refluxed in hotplate in 100^{o}C for 3hrs. This reaction was monitored by TLC. The mixture was cooled in ice to participate the solid crystal, the participate solid was filtered and recrystallized from Tetrahydrofuran (THF) , yield 76%. Melting point 124-126^{o}C, CHN analysis that formula $C_5H_6BrN_3O_2$ calculated C, 27.293 H, 2.574 N, 19.105; Found C, 27.132 H, 2.533 N, 18.924. Ultraviolet spectra λ_{max} 245, 270nm. FT-IR spectra ν_{max} 3013, 1440.1255, 960cm^{-1}.

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