ANTIBACTERIAL STUDYING OF SOME NEW VARIOUS MANNICH BASE DERIVATIVES

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ABSTRACT

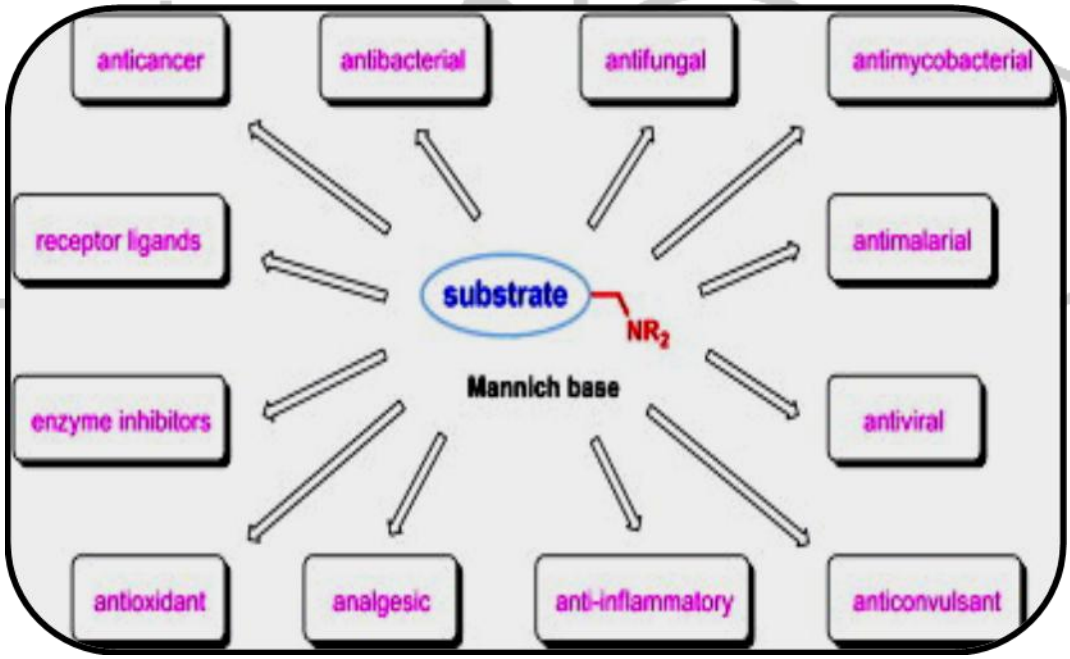
This work deals with the vital study of some new Mannich bases compounds prepared in earlier studying in our paper [1], we studied the biological activity of the synthesized Vehicles in this work, which we have prepared for them in our paper represented in enamine compounds that have a wide range of biological characteristics and because of a strong and important activities of its pharmaceutical.

KEYWORDS: Mannich ;pharmacological activities mannich bases ;enamine ,antibacterial.

No: of Tables: 1 **No: of Figures : 8** **No: of References: 31**

INTRODUCTION

Mannich bases compounds play an important role in biological system which have important biological properties and synthetic compounds which used in various studies and past work, especially in medicinal chemistry with drugs and a grow chemical research and development. Some of past studies in this field for the synthesis and biological activities of the Mannich[1] compounds appeared particularly after the discovery of several broad spectrum anthelmintic compound , The biological activity of any derivative depends on its molecular structure, the compounds containing the (thiazole, sulfone amide, sulfide, amide) - moiety exhibit a wide range of biological activities. From these classes of sulfur heterocycles, the synthesis of new derivatives of sulfone, sulfide have been attracting considerable attention because of various pharmaceutical properties like antioxidants[2],antifungal[3,4], anticancer[5] , pharmacological effects[6]antimalarial[7,8] , antibacterial[9,10] ,antifungal[11] ,antiviral agents[12] and other applications [13-19] in medicine field and synthetic chemistry field[20-26], the potential of mannich compounds as inhibitors of many enzymes or ligands for many receptors[14].



MATERIALS AND METHODS

All chemicals and instrumentals carried out in college of education, biological studying carried out in Bio – Lab in Biological Department.

Experimental Section

Antibacterial[27,28] **:**

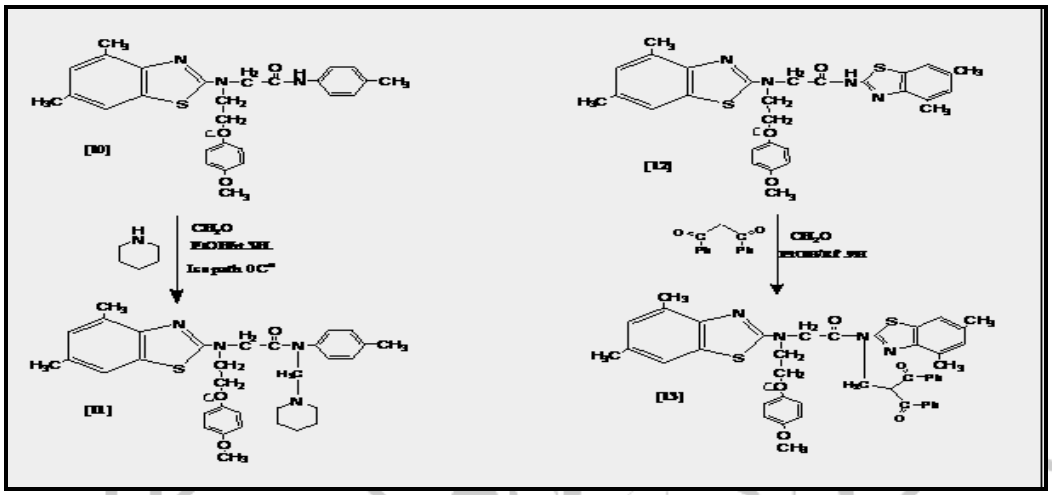
The biological activities of synthesized compounds have been studied for their antibacterial activities by agar via biological methods. The antibacterial

activities were done at three concentratios (2 , 4 , 6) mg/ml concentrations in DMSO solvent through using two types of bacteria (***Staphylococcus aureus*** and ***Salmonella typhi***). These bacterial strains were incubated for 24 hrs. at 37°C.

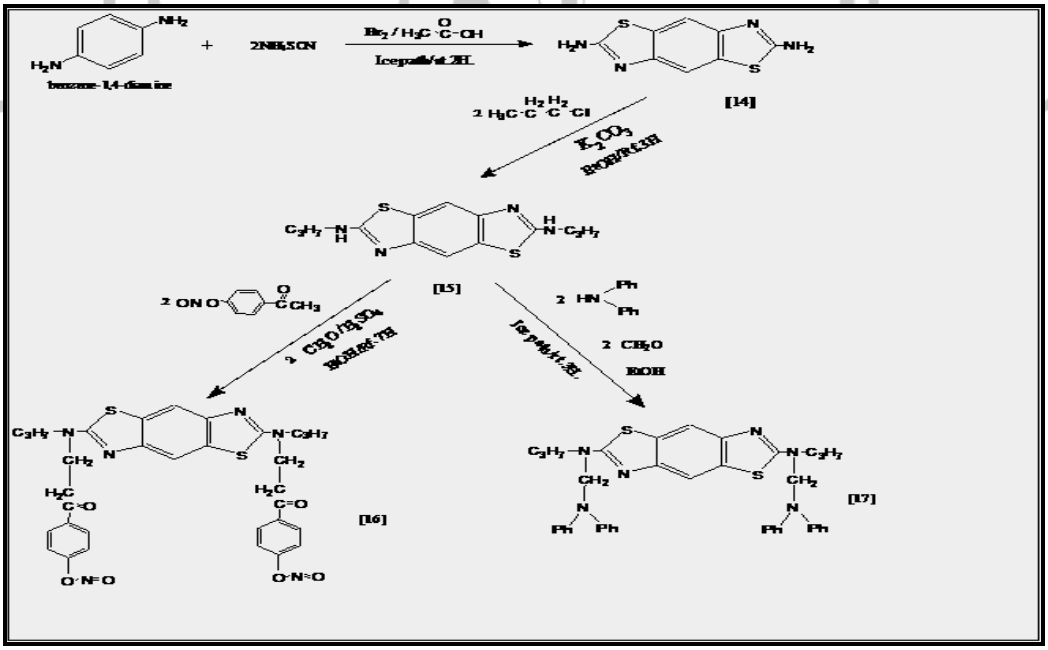
Synthesized Compounds in our Past Paper[1]:

In our previously work[1], we synthesized several compounds, while we will study the biological field for some them in this work.

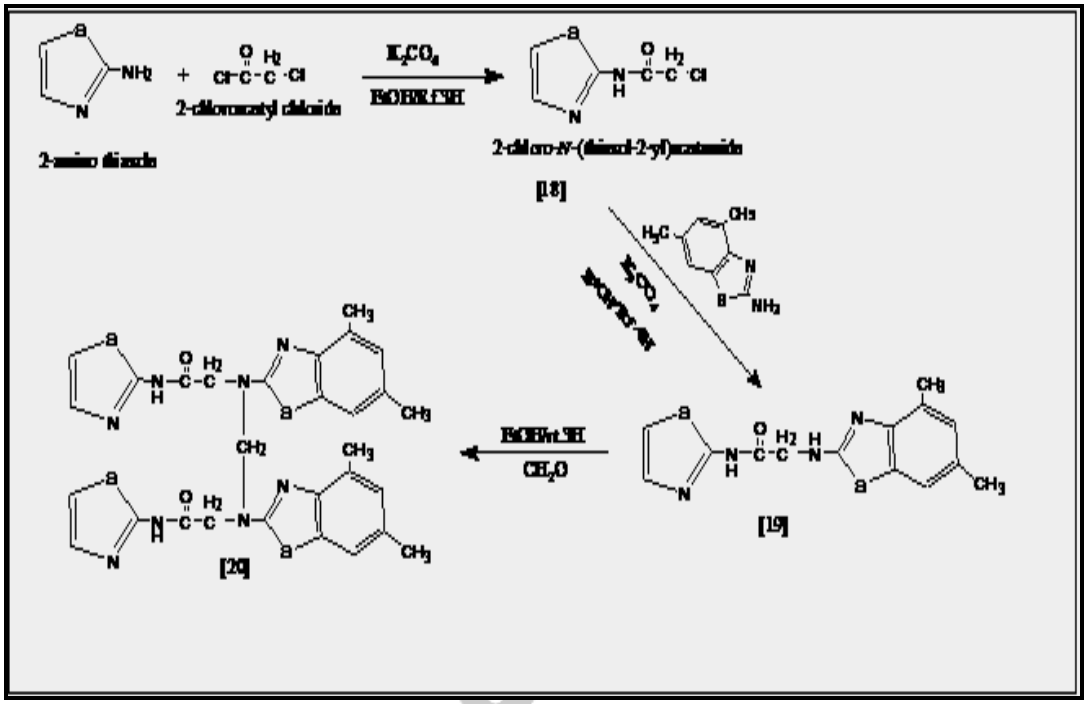
Scheme (1): Preparation Comp. [10-13]



Scheme (2): Preparation Comp. [14-17]



Scheme (3): Preparation Comp. [18-20]



Results and Discussion

In past paper of our work, we synthesized these Mannich base compounds but now we will study of antimicrobial activity[21] against two types of bacteria.

Antibacterial Assay

The antibacterial results are listed at table (1). From results of antibacterial studies it was found to be potentially activity against all types of bacteria. It is evident from the results that the biological activities of all compounds have high biological activity which inhibit the growth[29-31] of bacteria.

Table (1).Antibacterial Activity of Compounds (Inhibition Zone in (mm) of Compounds[11–20] in Concentration (6 mg.ml^{-1}).

Comp. No.	G+ : *Staphylococcus. Aureus*	G-: *Salmonella .typhi*
[11]	18	12
[12]	24	16
[13]	26	18
[14]	16	8
[15]	16	10
[16]	22	14
[17]	20	14
[18]	14	6
[19]	24	14
[20]	30	20

The higher activity of compounds [12, 13 ,19, 20] may be due to the fact that, is an essential micronutrient during transcription and transformation of nucleic acids which shown to inhibit cellular protein and RNA synthesis, they included some groups like sulfone with sulfur atoms and hence inhibit the bacterial growth[21 ,28].

Furthermore, the mechanism of action of the compounds may involve the formation of hydrogen bond with the active centers of the cell constituents resulting in the interference with the normal cell process. In general, the intake of a drug depends on the balance between hydrophilic and lipophilic properties[14-17] and the solubility which are substituent dependent which Increases the lipophilicity of a drug and this may be the reason for the enhanced activity upon sulfur compounds. hydrogen bonding and the anti metabolite action of the compound may be an important factor in antimicrobial activity[28-31].

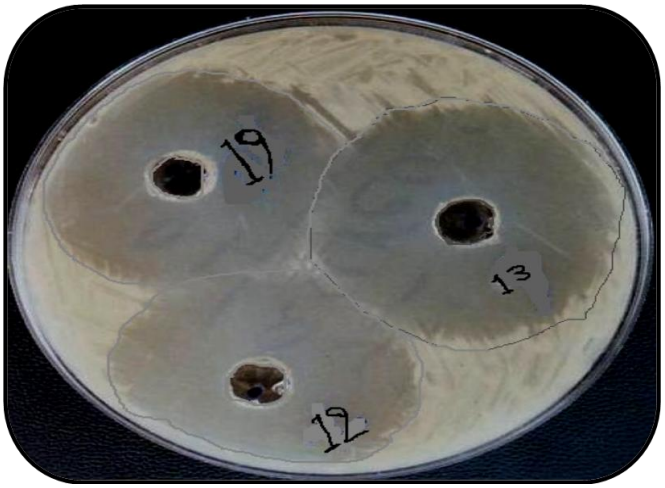


Plate 1.Antibacterial activity –*Staphylococcus aureus*.

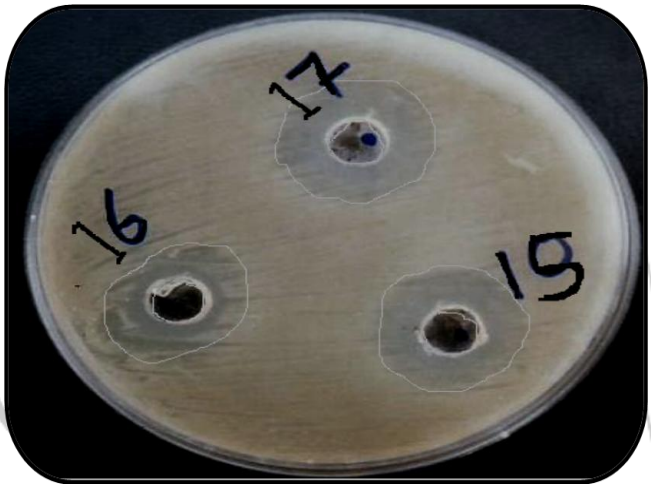


Plate 2.Antibacterial activity –*Staphylococcus aureus*.

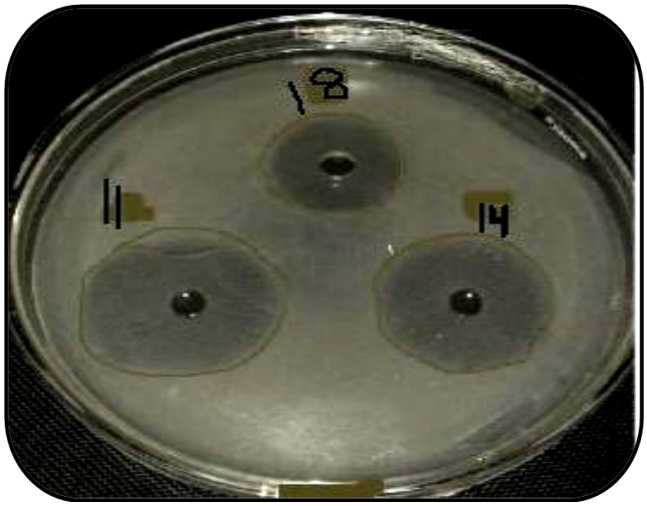


Plate 3.Antibacterial activity –*Staphylococcus aureus*.

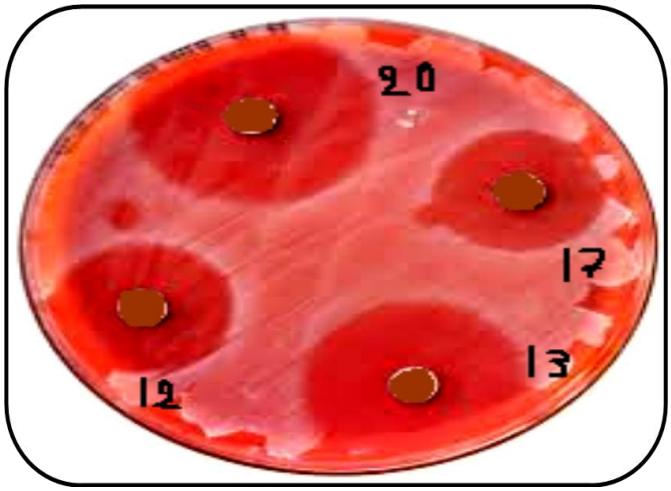


Plate 4.Antibacterial activity - *Salmonella typhi*.

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