[2] LITERATURE REVIEW:

Schiff base derivatives of \( N\{((1E)\{3\{-\text{mono or di-substituted aryl}\}\}-\text{phenyl-1H-pyrazol-4-yl}\}\{\text{methylene}\}\}-4\{-\text{methylpyridin-2-amine}\} \) were synthesized by the acid catalyzed condensation of 3-(mono- or di- substituted aryl)-1-phenyl-1\( H\)-pyrazole-4-carbaldehyde derivatives with 4-methylpyridin-2-amine was reported in E-Journal of Chemistry in 2009 (1).

Preparation, Characterization and and biological evaluation of Cu (II) and Zn (II) complexes of Schiff bases derived from amoxicillin, cephalaxin, sulphamethoxazole, Trimethoprim and Salicylaldehyde and pyridoxal was reported in 2002 (2).

Synthesis of Schiff base is often carried out with acid-catalyzed and generally by refluxing the mixture of aldehyde (or ketone ) and amine in organic medium. However with the assistance of microwave irradiation, it was found that the condensation reaction of salicylaldehyde and various aryl amines could proceed fast and efficiently without solvent. The products could be purified simply by re-crystallization in an appropriate solvent or a mixture of solvents. The yields of the product were high (3).

Antimicrobial activity of some Schiff bases derived from 4-amino benzoic acid was evaluated using the Agar Ditch method. The solvents used were 1,4-dioxane and dimethyl sulfoxide. Different effects of the compounds were found in the bacterial strains investigated and the solvents used, suggesting that the antibacterial activity is dependent on the molecular structure of the compound, the solvent used and the bacterial strain under consideration (4).

Synthesis and antibacterial screening of hydrazones, Schiff and Mannich bases of isatin derivatives was reported in European Journal of Medicinal Chemistry in 2001 (5).

A number of new Schiff bases have been synthesized from Salicaldehyde and sulfonamides and screened for antibacterial activity was reported in 2010 (6).
Synthesis, Characterization of new Schiff base derived from Sulphadiazine and 2-hydroxy, 1-napthaldehyde / benzoyl acetone for gravimetric determination of the Cu(II) was studied and reported in 2012.(7)

Synthesis, Spectral Analysis and Antimicrobial Activity of some new Schiff base complexes derived from 2-amino pyridine and 2, 4-dihydroxy acetophenones was reported in 2012.(8)

Schiff bases in four sets each with different linkers and substitutions was synthesized by condensing appropriate aromatic amines with different aromatic aldehydes in the presence of glacial acetic acid at pH 4 to 6. The structures of all the synthesized compounds have been characterized on the basis of analytical and spectral data. The antimicrobial activities of all these compounds were evaluated by measuring zone of inhibition using agar diffusion method was studied and reported in 2010.(9) A biological activity of isatin and its derivatives was also reported in 2005 (10).

Synthesis of the better antimicrobial compounds using different substituted aromatic aldehydes were chosen as starting material for synthesis of Schiff base. Antibacterial and antifungal activity was done in comparison with ciprofloxacin and ketoconazole as standard to reveal the potency of synthesized derivatives. (11)

Heterocyclic moiety containing Schiff bases have been synthesized by the condensation of aromatic amines with substituted benzaldehyde under organic solvent free condition efficiently in the presence of water. The Schiff bases were obtained in good yields and were easily isolated by filtration. and potent antibacterial activity was studied in 2010.(12)

A novel substituted pyrazole trifluoro methyl hexa hydro pyrimidinones have been prepared by Biginelli condensation of six substituted pyrazolealdehydes, ethyltrifluoroacetooacetate and urea using zinc chloride as catalyst. The structures of the
synthesized compounds have been confirmed on the basis of spectral data and studied invitro for antimicrobial activity and cardio tonic activity was reported in 2010 (13)

Synthesis and Antimicrobial Activity of Schiff’s and N-Mannich Bases of Isatin and Its Derivatives with 4-Amino-N-Carbamimidoyl Benzene Sulfonamide. The Mannich bases of these compounds were synthesized by reacting them with formaldehyde and secondary amine (piperidine) was studied in 2010. (14)

Synthesis and Antimicrobial Study of Some Schiff Bases of Sulfonamides derived from different substituted aromatic aldehyde with different sulfonamide helps to formation of Schiff bases in presences of alcohol and acidic reagent was reported in 2010.(15)

Synthesis of benzyl derivatives of heterocyclic amines, we have investigated the reaction of amines and arylaldehydes in the presence of different reducing agents. The improved procedure for the reductive alkylation of heterocycle containing primary amines or heterocyclic secondary amines has been elaborated for synthesis of new benzyl derivatives. These benzyl amines have been obtained in 50-75% yields by direct reductive amination of arylaldehydes with sodium borohydride-acetic acid reducing system was reported in 2008.(16)

The Schiff derived from different substitute of amine that reacts with aldehyde to give the Schiff base. The latter reagent 4[(4-dimethylamino-benzylidene)-amino]- benzene sulfonamide was synthesized from the condensation of sulfanilamide with p-dimethylaminobenzaldehyde. A UV-Vis spectroscopic characterization and acid-base equilibrium study of the reagent for its possible use as an indicator were investigated in J.Iran.Chem.Soc. in 2009.(17)

New Schiff bases derived from Ortho-Hydroxyaryl aldehydes and aromatic or heteroaromatic amines have been synthesized in high yields via condensation in ethanol in the presence of catalytic amounts of sulfuric acid. These azomethines, useful as
ligands, intermediates in organic synthesis or potential biologically active substances reported in BCTM 2001. (18)

A new Schiff base, 3-ethoxy salicylidene amino benzoic acid (ETSAN), has been synthesized from 3-ethoxy salicylaldehyde and 2-amino benzoic acid. Metal complexes of the Schiff base were prepared from nitrate/chloride salts of Ni(II), Co(II) Cu(II) and Zn(II) in an alcoholic medium. The atoms of hydroxyl group of the 3-ethoxy salicylaldehyde, besides the hydroxyl group of the carboxyl group of 2-amino benzoic acid. The free Schiff base and its complexes have been tested for their antibacterial as well as antifungal activity by using disc diffusion method. These Schiff bases reported in JSR 2010. (19)

Schiff bases were synthesised from sulphonamide and resacetophenone. These Schiff bases were evaluated for their antimicrobial activity against both Gram-positive and Gram-negative bacteria as well as fungi. The comparison of antimicrobial activities of the ligands and complexes shows that the presence of metal causes more inhibition i.e., more activity. These Schiff bases studied in J.Of Iranian Chemical Society 2006. (20)

Nicotin-4-carboxylic acid was converted into methyl ester by using methanol in presence of catalytic amount of sulphuric acid. The methyl nicotin-4-carboxylate is converted in to isoniazide by the condensation hydrazine hydrate in DMF. The isoniazide is then condensed with various aldehyde in absolute alcohol in presence of catalytic amount of acetic acid and final product N[(1E)-alkylidene]pyridine-4-carbohydrazide. These type of Schiff bases reported in JCPR 2011. (21)

Synthesis, antibacterial, antifungal and anti-HIV activities of norfloxacin Mannich bases were reported in European Journal of Medicinal Chemistry (22)

Substituted sulfonamides were reacted with different aromatic aldehydes to form Schiff bases. TLC ascertained the purity of synthesized compounds on silica gel G coated plates and visualized by using iodine vapour. The structures of synthesized compounds were
confirmed by various techniques. The derivatives were subjected to antimicrobial activity using different bacterial strains. (23)

Schiff bases derived from aromatic amines and aromatic aldehyde have been found to possess the pharmacological activities such as antimalarial (Li et. al., 2003) anticancer (Villar et. al., 2004) antibacterial (Venugopal et. al., 2008) antifungal (Pandey et.al., 2003) antitubercular (Bhat et. the assistance of al., 2005), anti-inflammatory, antimicrobial (Wadher et. al., 2009) and antiviral (Karthikeyan et. al., 2006) etc (24)

The Schiff base of 4-hydroxy -3-methoxy -5-nitrobenzaldehyde was synthesized from amine and 4-[(E)-{(4-aryl)imine}methyl]-2-methoxy -6-nitrophenol. The final products was 4-[(E)-{(4-aryl)imine}methyl]-2-methoxy -6-nitrophenol. These studied in JCPR 2012. (25)

Anticonvulsant activity of hydrazones, Schiff and Mannich bases of isatin derivatives were reported in European Journal of Pharmaceutical Sciences in 2002 (26).

Schiff bases are aldehyde - or ketone - like compounds in which the carbonyl group is replaced by an imine or azomethine group. They are widely used for industrial purposes and also exhibit a broad range of biological activities. The reaction is acid catalysed, however only aldehydes and ketones which do not aldolize easily in acidic media, can be condensed with amines in presence of strong acid catalyst. Schiff bases are biologically active compounds and have been reported to possess various important pharmacological properties like antifungal, anticancer, anticonvulsant and diuretic activities. Schiff bases are derived from heterocycles has been reported to posses cytotoxic properties. These types of Schiff bases studied most promising analgesic, anti-inflammatory activity. (27)


Synthesis and anti-HIV activity of some isatin derivatives were reported in 2001 (29).
Synthesis and in Vitro Antiviral Activities of Some New 2-Aryltiomiethyl-4-tertiarylaminomethyl substituted derivatives of 6-Bromo-3-ethoxycarbonyl-5-hydroxyindoles was studied and reported in 2004 (30).

The Schiff bases were prepared by condensation reaction of certain aromatic amines with aromatic aldehydes derivatives, then the fluorescence properties of these Schiff base were examined in acidic and basic media. From the above Schiff base can be used for spectrofluorimetric monitoring of small pH changes was reported in 2007.(31)

Synthesis and antimicrobial activity of Schiff and Mannich bases of isatin and its derivatives with pyrimidine was reported in 1999 (32)

Anti-HIV activity of some Mannich bases of Isatin derivatives was studied and reported.(33)

A microwave-assisted preparation of a series of Schiff-base via efficient condensation of salicylaldehyde and aryl amines without solvent is described in high yield as well as environmental friendship reaction in organic synthesis reported in 2002.(34)

Schiff base and 2-azetidinones of 4,4’-diaminodiphenylsulphone have been synthesized. 4,4’-diaminodiphenylsulphone was condensed with various aromatic or heterocyclic aldehyde in ethanol in the presence of concentrated sulphuric acid as a catalyst to yield the Schiff base. These compound were evaluated for their in Vitro activity against several microbes and exhibited potent antibacterial activity with the reference standard ciprofloxacin and fluconazol was reported in 2009.(35)

By condensing 2-aminobenzothiazole with 2-hydroxy-1-naphthaldehyde, 2-hydroxybenzaldehyde,4-methoxybenzaldehyde, 4-hydroxybenzal-dehyde, benzaldehyde and 4-dimethylaminobenzaldehyde, and five Schiff bases Ia-Ie are prepared. Also, two
Schiff bases IIa and IIb are prepared by condensation of 2-amino-3-hydroxypyridine with 2-hydroxy-1-naphthaldehyde and 2-hydroxybenzaldehyde and studied in 2008.(36)

Reactions of 2,4-dinitrophenylhydrazine with salicylaldehyde, pyridine-2-carbaldehyde and 2-aminobenzophenone in methanol result in the hydrazone Schiff base ligands salicylaldehyde-, pyridine-2-carbaldehyde-, and 2-aminobenzophenone-2,4-dinitrophenylhydrazone, respectively reported in 2007.(37)

Three new poly Schiff bases were synthesized by polycondensation of diethylenetriamine, 1,2-diaminopropane and o-diaminobenzene with 5a,10b-dihydrobenzofuro [2,3-b] benzofuran-2,9-dicarbaldehyde II. The polymer chelate was insoluble in common organic solvents studied in 2003.(38)

Cinchophen was synthesized from pyruvic acid, aniline and benzaldehyde by Doebner synthesis. Cinchophen acid chloride was synthesised from cinchophen and oxalyl chloride by acylation reaction. The 2-phenylquinoline-4-carboxylic acid amide was synthesized from acid chloride and ammonia by simple reaction. All these compounds were evaluated for their in vitro activity against several microbes. The results indicate that all the synthesized compound shown mild to good activity against the pathogenic bacteria and fungi and have been shown to be more potent than cinchophen with the reference standard ciprofloxacin and fluconazole drug reported in 2009.(39)

Schiff bases derived from condensation reaction of Acrolein with 2-aminophenol Cinnamaldehyde with 2-aminophenol and Cinnamaldehyde with phenylene diamine were prepared. Schiff bases as inhibitors for corrosion of carbon steel in acidic media 0.5 N HCl. The rate corrosion was measured by Electrochemical and Weight loss methods and it was found that their results are inagreement between them. The results indicated that these Schiff bases inhibited the corrosion efficiently reported in 2011.(40)