**Literature review:**

Eight new 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.[1] A potential method for one-pot synthesis of Schiff base compounds derived from different aldehyde and Di-amine compounds like substituted aromatic aldehyde and Diamines; such as Salicylaldehyde, 3, 4-Tertery butyl 2-Hydroxy Benzaldehyde, Ethylene Diamine, 2-AminoPyridine, 1, 2-Di-amine Benzene, 1, 3-Diamino Propane by using catalytic amount of P$_2$O$_5$/SiO$_2$ have catalyzed the ligand formation in dry media under free-solvent condition at room temperature. This type of excellent method avoids use of hazardous solvents, longer reaction time and tedious work up procedure. Advantage of this efficient method is excellent yield of products in crystalline form, short reaction time, simplicity of work up procedure and no use of any type of hazardous solvents. Simply this reaction is environmentally Proctive (non polluted) and economically attractive method for synthesis of Schiff base compound.[30] The Schiff base shown in this paper have been synthesized by Brewster and Millam who studied phototropic and thermotropic anils from 5-Bromosalicylaldehyde. Schiff bases very similar to this compound have shown microbiological activity and antifungal properties.[29] Chalcones have been prepared by the condensation of ketone and different aromatic aldehydes. These chalcones on treatment with guanidine hydrochloride and phenyl hydrazine hydrochloride in presence of alkali give amino pyrimidines and phenyl pyrazolines respectively.[35] Chalcones have been a subject of great interest for chemists and biochemists all over due to several reasons; their ease of synthesis, vast and interesting pharmacological activities synthetic and natural chalcones possess and their potential to be used as important synthetic intermediate for their reaction with different types of reagents have provided altogether diverse areas of interest. Chalcones are well known intermediates for synthesizing various heterocyclic compounds. Substituted 1,3-diphenyl-2-propen-1-ones were synthesized via solvent free synthesis and their effect on bovine serum albumin was evaluated. It was observed that the synthesized chalcones interacted with the serum protein irrespective of the type and position of the substituent and resulted in its precipitation. One of the most widely used method employed for the synthesis of chalcones involved Claisen-Schmidt condensation of substituted benzaldehyde with the acetophenones in the presence of a base. In the present work we report the synthesis of substituted 1,3-diphenylproponenes under solvent free conditions.. [24] Reaction of derivatives of ethyl vinyl ether or ketene dithioacetal substituted with alkyl and aryl groups with hydrazine hydrate
afforded respective pyrazole derivatives. This on subsequent treatment with $\alpha$-halo substituted acyl halide resulted in the respective N-acylated derivative. Reaction of N-acylated derivative with mercapto heterocyclic compounds in the presence of base resulted in the formation of sulphur bridged pyrazole derivatives. In our recent communication were ported some of the novel sulphur bridged pyrazole derivatives having thiomethyl substituent at the 3-position of pyrazole ring, their characterization and biological activities.[31] 4-methoxybenzaldehyde was react with various aromatic ketones by using alkali as catalyst to afford (E)-3-(4-methoxyphenyl)-1-aryl-prop-2-en-1-ones (2a-j). Compounds (2a-j) on reaction with hydrazine hydrate in the presence of glacial acetic acid to gives 1-Acetyl-3-aryl-5-(4-methoxyphenyl)pyrazoles (3a-j). The obtained compounds were evaluated for their anti inflammatory activities as well as gastric ulcerogenic effects. Recently highly selective COX-2 inhibitors belonging to the classes of diaryl heterocycles and methane sulfonanilides have been developed and marketed.[11] The pyrazole ring system plays an important role in many biological processes. Such as therapeutic agents, etc... As these two heterocycles are potent as biologically active compound, in the present study we planned to prepare compounds containing both 1,2,3,4-tetrahydro carbazole and pyrazole structures in one compound.[37] 2-Azetidinones, commonly known as $\beta$-lactams, are well-known heterocyclic compounds among the organic and medicinal chemists. In our present study 2-aminopyridine is condensed with different substituted aromatic aldehydes to form respective Schiff base. It was cyclised with chloro acetyl chloride to yield corresponding azetidinones. Structures of synthesized compounds were confirmed by physical and spectral analysis. The compounds are evaluated for their antimicrobial activities. The activities are due to cyclic CO-NH group in azetidinones. Some of the compounds have shown comparable antimicrobial activities [2]. Thiazolidinone, a saturated form of thiazole with carbonyl group on fourth carbon, has been considered as a magic moiety which posses almost all types of biological activities. It belongs to an important group of heterocyclic compounds containing sulfur and nitrogen in a five member ring. There are a large number of heterocyclic five membered rings are available but thiazolidinone posses a large number of biological activity. It has been found that moiety exhibits remarkable activity against human immunodeficiency viruses type 1 reverse transcriptase inhibitors. In literature survey it has been found that in combination with many group of heterocyclic ring the spectrum of pharmacological activity associated with thiazolidinone and its derivatives can be broden.[32] [4-Oxo-thiazolidines substituted in 2 and 3 positions exhibit a wide range of biological activities. A series of 4-oxo-thiazolidine have been obtained by cyclisation of various Schiff’s base with thiomalic acid.] [4 - Oxo - thiazolidines are
synthesized either by cyclization of acyclic compounds or by inter conversion among appropriately substituted thiazolidinone derivatives by the action of thioglycolic acid on Schiff’s bases.[3] Many Schiff bases were prepared by condensation reaction of compounds containing biphenyl carboxylic acid with aromatic arylaldehydes derivatives with Thiazoldine-4-one.[28] 4-Thiazolidinones and its arylidene compounds give good pharmacological properties. 4-bromo-2-hydroxy benzoic acid hydrazide undergoes facile condensation with aromatic aldehydes to afford the corresponding 4-bromo-2-hydroxy benzoic acid arylidene hydrazides(2a-h) in good yields.[12] 4-Thiazolidinones have attracted considerable attention as they are endowed with wide range of pharmaceutical activities. The nucleus is also known as wonder nucleus because it gives out different derivatives with all different types of biological activities. Here in we report some 2, 3-disubstituted-4-thiazolidinones 4(a-g), 2, 3-disubstituted-5-methyl-4-thiazolidinones 5(a-g) and 2, 3disubstituted-5-arylidene 6(a-g). The synthesized compounds were ascertained from spectral and physiochemical analysis [34]. Nitrogen- and sulfur-containing heterocycles play an important role, not only for life science, but also in many other industrial fields related to special and fine chemistry. The survey of literature related to benzothiazole and thiazolidinone derivatives show that compounds with these nuclei have vast medicinal importance in the field of pharmaceutical chemistry Some 2-aryl-3-(6-substitutedbenzothiazolyl)-1,3-thiazolidine-4-ones have been synthesized by the reaction of substituted-2-aminobenzothiazole with aromatic aldehyde (benzaldehyde, p-chlorobenzaldehyde, anisaldehyde, salicylaldehyde) followed by condensation with mercaptoacetic acid.[14] Traditionally, azo dyes are the most important class of commercial dyes, occupying more than half of the dye chemistry, which contain phenols as intermediates. Hence, in continuation of earlier work, the present communication comprises the synthesis, characterization of some novel disperse azo dyes based on 1-(4-N-acetylamino) 2-methyl phenyl 2-chloro ethanone, The dyeing assessment of all the disperse dyes was evaluated on nylon and polyester fabrics and studies of fastness properties. [16] The percentage dye bath exhaustion and fixation on the polyester fibers have been found to be very good. Moderate to very good light fastness and washing fastness properties were indicated by the dyed fabrics. [22] The novel mordent and disperse heterocyclic dyes were prepared by coupling of various diazo solution of aromatic amines with 2-Butyl-3-(4-hydroxybenzoyl) benzofuran. The dyeing assessment of all the mordent and disperse heterocyclic dyes was evaluated on wool and polyester textile fibers. The formation of dyes based on this heterocyclic compounds may yield with good hue properties. Hence, in continuation of earlier work it was thought interesting to explore the field of azo dyes based on 2-Butyl-3-(4-hydroxybenzoyl)
benzofuran. [17]. Reactive dyes are extensively used for dyeing process in textile. They exhibit a wide variability in chemical structure, primarily based substituted aromatic and hetero cyclic groups. Textile dye Reactive orange 16 was selected for biotransformation studies by Enterococcus faecalis YZ 66. Optimization of parameters for dye decolourization were studied under static anoxic condition. [25] Novels disperse and mordent azo dyes were prepared by coupling of various diazo solutions of aromatic amines with 2-hydroxy-4-methoxybenzophenone. The dyeing performance of all the dyes was evaluated on wool and polyester textile fibers. The dyeing of chrome pretreated wool and polyesters have also been monitored. The results show that better hue was obtained on mordented fiber. [6] The new pyrazine derivatives exhibited an antibacterial activity have been synthesized. In present investigation, were ported here the synthesis of pyrazolines from piperazine chalcones and hydrazine hydrate in basic condition using methanolas a solvent for the reaction. [15] A series of novel Azetidinone derivatives have been synthesized from the intermediate schiff bases. Schiff bases are prepared from sulfamethoxazole moiety by reacting the hydrazide of the parent compound with different aromatic aldehydes. Cyclocondensation of schiff’s bases with acetylchloride resulted in the formation of azetidinone derivatives. [10] Some new heterocyclic azetidiones have been prepared by the reaction of various Schiff bases with chloro acetyl chloride. The intermediate Schiff bases were synthesized by the condensation of isoniazid with various aldehydes. [23] A series of (3, 5-dimethyl-1H-pyrazol-4-yl)-phenyl-diazencnes were prepared by condensig hydrazine hydrate with 3-phenylazo-pentane-2, 4 Dione. The synthesized compounds were screened for their antibacterial activity against four types of bacteria[27]. Some new disperse azo dyes based on Schiff base of ninhydrin and 4-amino phenol were prepared by coupling of various diazo solution of benzene derivatives. All the disperse azo dyes were applied on polyester textile fibers. The percentage dye bath exhaustion and fixation on the polyester fibers have been found to be very good. The dyed fabrics showed moderate to very good light fastness and washing fastness properties [18]. In an effort to develop antimicrobial agents, a series of chalcones were prepared by Claisen-Schmidt condensation of appropriate acetophenones with appropriate aromatic aldehydes in the presence of aqueous solution of potassium hydroxide and ethanol at room temperature. [39] An euuimolar reaction of benzaldehyde hydrazones with 2 diazo 1,2-diphenylethanone affords benzaldehyde N-diphenylacyl hydrazones as a result of reaction of diphenyl ketone, generated in situ from the thermal decomposition of 2-diazo azo-1,2,diphenylethanone with NH2 of hydrazones. [8] Attempts have been made to prepare disperse dyes based on aryl ether 4-amino-2,4’-dichloro diphenylether was diazolized and
coupled with various diazo components. These compounds were evaluated for the dyeing properties on polyester fiber. [5]