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Review Article

Synthesis of Schiff bases: A Glimpse on recent literature

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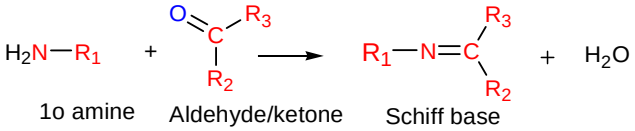
Abstract

Herein, author has presented a brief update on the very recent synthetic approaches for the preparation of Schiff base and its analogues. This covers the aforementioned topic until August 2021.

***Keywords*:** Schiff base; Ligand; Synthesis; Biological activity

Condensing carbonyl compounds as well as 1^{o} amines yields Schiff bases, which are a family of compounds.[1] A ketone or aldehyde analogue wherein the carbonyl group (-C=O) is converted into imine/azomethine (-HC=N-) activity when interacting with 1^{o} amine is termed as an imine or azomethine (**Scheme 1**).



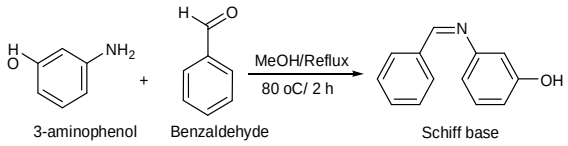
Scheme 1: General synthetic course for Schiff bases.

Ever since the discovery, Schiff base[2] has attracted a lot of interest because of the ease with which it can be tailored by appending multiple substituents both in amino and aldehydic precursors, resulting in differences in the basic characteristics of the produced products.The application of Schiff bases as potential drugs or biological agents in biological or indeed therapeutic purposes has been studied, particularly the antibacterial properties.[3-6]

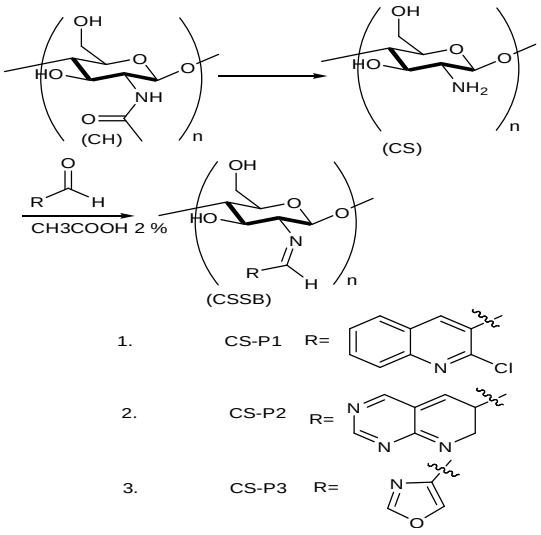
The potential of tiny compounds like Schiff bases to attach to DNA has piqued researchers' curiosity. Schiff base ligands enrich modern coordinate chemistry because of Schiff bases's metal complexes are the highly researched coordination compounds.[7]Schiff bases' growing relevance as analytical & biochemical reagents is widely established.[8]

Numerous publications about Schiff bases have resulted in the discovery of various novel chemicals, few of which are biologically important. The simplicity by which Schiff bases are developed and produced has earned them the moniker "fortunate ligands," because of their C = N connection, which is important for antifungal, antibacterial, anticancer, antioxidant, and diuretic properties.[8-11] Schiff bases containing numerous donor atoms - such as N, O, S, and others have a wide range of biological functions and they are of particular interest owing to the diversity of ways they may link to metal ions, with their stability, and biological implications.[12-14]

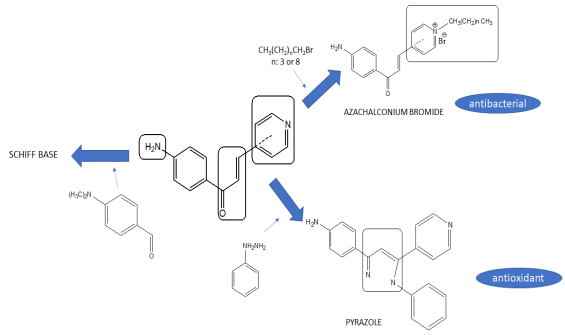
Typical procedures comprise workings from Babu[15,16], Nadia,[17] Xie,[18] Yahaya,[19] Kargar,[20] Nedime,[21] Tahere,[22] Mighani[23] etc.



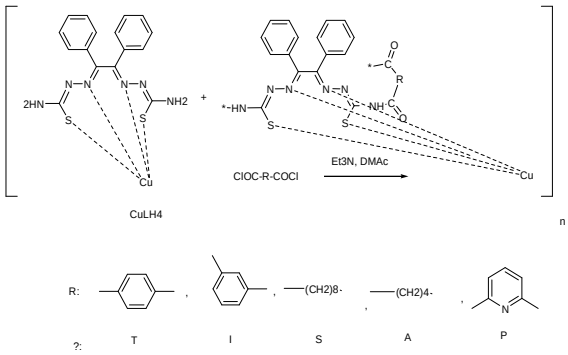
Scheme 2: Synthesis of 3-aminophenol and benzaldehyde Schiff base.



Scheme 3. Schiff base from amine groups of glycosides[19]



Scheme 4: Synthesis of biologically active Schiff base[21](copy right.@*Lett.Org. Chem.*, **2020**, *1*, 631)



Scheme 5: Preparation of the polyamides[23]

Conclusion

Keeping in view of the biological importance of Schiff bases, synthesis of novel SB and coupling with the ligands has become continued process. Herein, authors, presented a mini update on the synthesis of Schiff bases and hope this will be a valuable addition to the synthetic chemists.

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Conflict of interest

The authors declare no conflict of interest

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