Conclusion Publication
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1. Schiff base have been synthesized by using amino moiety drug and converted in to 4-thiazolidinones, 2-azetidinones, α-aminophosphonate etc using different catalyst and ionic liquids.

2. For the synthesis of new Schiff base different amino moiety drug and halogenated 2-hydroxy aldehyde as well as vanalline were used.

3. The Schiff base were synthesized by the condensation of amino moiety drug and aromatic aldehyde using ethyl ammonium nitrate (EAN) ionic liquid at 100 °C. Reaction proceeds cleanly and no undesirable side products were observed with reusability of ionic liquid.

4. Synthesized new Schiff bases again converted in to 4-thiazolidinones, 2-azetidinones, α-aminophosphonate derivatives.

5. 4-Thiazolidinones have been synthesized by Schiff bases and mercaptoacetic acid under microwave irradiation using ZnCl2/montmorillonite K-10 as a reusable catalyst. Excellent yield of products were obtained and the catalyst is recycled and reused for several times. The procedure is simple, ecofriendly, fast, solvent free and can be used as an alternative to the existing procedure.

6. 2-Azetidinones can be synthesized by the reaction between Schiff base and chloroacetyl chloride using triethylamine as a catalyst. The reaction mixture was stirred at room temperature for 5 hr. and then 50 °C at 1 hr. to obtain 2-Azetidinones. Using this procedure increase in yield of product was observed.

7. Ionic liquid [bmim]BF₄ has been used for the synthesis of α-aminophosphonates via Schiff base and diethylphosphite. The reaction proceed at room temperature and ionic liquid [bmim]BF₄ was recycled and reused for several times in subsequent reactions without
change in its efficiency. This method is simple, efficient and high selectivity with excellent yield of product.

8. These methodologies offer several advantages such as high yields, shorter reaction time and cleaner reaction profiles. This simplified procedure finds wide utility in organic synthesis due to presence of the ionic liquid and heterogeneous catalysts, without any hazardous solvent.

9. Most of synthesized compounds show good antibacterial and antioxidant activity.

10. Most of synthesized compounds were moderately active against all the bacteria tested. While $S_3$ (Schiff base, Table 2.1) active against *Salmonella*; $T_3$ (4-Thiazolidinones, Table 3.1) and $A_2$ (2-Azetidinones Table 4.1) active against *S. aureus*;

11. Some of the compound Schiff base (Table-2.1) shown potent Antioxidant activity. The Schiff base $S_2$ gives 74.25 % DPPH antioxidant assay, $S_3$ gives 82.03 % DPPH antioxidant assay while $S_{12}$ gives 61.03 % DPPH antioxidant assay as compare to ascorbic acid standard (67.33 % DPPH antioxidant assay).

12. In summary, having a series of Schiff base and its derivatives that share common structural properties and by considering their antibacterial and antioxidant effects, it was possible to rationalize the trend in the biological data on the basis of specific structural properties of the examined drugs. Thus, the present findings are useful in advancing the efforts towards achieving a systematic prediction of the absolute biological effects in a rational way. Such information is currently in high demand to the biological and medicinal communities.