



STUDY OF VILSMEIER-HAACK REAGENT

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Introduction: The Vilsmeier-Haack reagent has attracted the attention of synthetic organic chemists since its discovery in 1927. The application of Vilsmeier-Haack reagent for formylation of a variety of both aromatic and heteroaromatic substrates is well documented. Beside this, the reagent has also been extensively used for effecting various chemical transformations from other class of compounds. Many of these reactions have led to a novel and convenient routes for the synthesis of various heterocyclic compounds. In addition, certain striking applications e.g. halogenation, alkylation and haloalkylation have also been recently appeared. A number of reviews dealing with specific aspects of Vilsmeier-Haack reaction have appeared. The reaction between phosphorylchloride and *N*-methylacetanilide led Vilsmeier and Haack to develop the versatile reagent. The reagent obtained from *N*-methylformanilide and phosphorylchloride, represented as salt, reacts with *N,N*-dimethylaniline to give 4-*N,N*-dimethylaminobenzaldehyde. Other *N,N*-dialkylaniline derivatives are also successfully used as substrates to prepare aromatic aldehyde derivatives. The gradual development of the reagent for synthesizing heterocyclic compounds is accompanied by the interest in the nature of reagent.



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Synthesis of Heterocyclic Compounds

Synthesis of heterocyclic compounds are achieved either by cyclization of open chain substrates by using POCl₃/DMF or the sequential transformations of substrate heterocyclic compounds using POCl₃/DMF to obtain new heterocyclic derivatives. Here, we are representing synthesis of some five membered heterocyclic compounds using Vilsmeier-Haack reagent.

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