EFFICIENT FORMYLATION OF ALCOHOLS VIA A VILSMEIER-HAACK TYPE INTERMEDIATE

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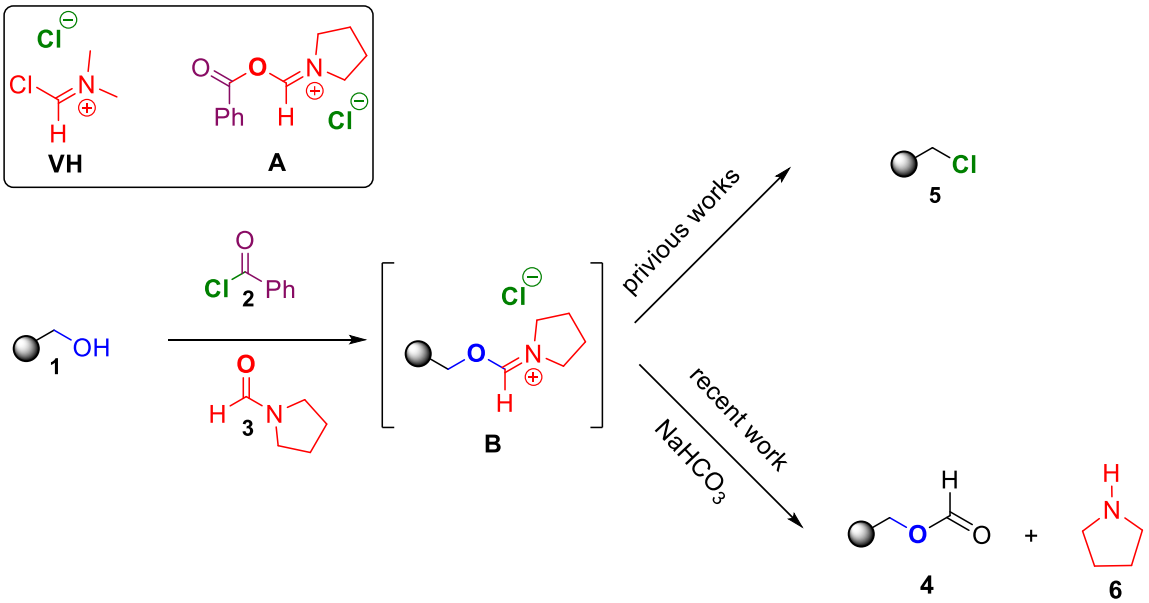
The Vilsmeier-Haack reagent **VH** plays an important role and is commonly employed in organic synthesis for the formylation of arenes and as a promotor for C-Cl bond formation.[1–3] This amidate and derivates thereof are typically generated by the reaction of an amide with highly electrophilic reagents, such as phosphorus oxychloride ($POCl_3$),[4] triphenylphosphine and NBS,[5] and gaseous sulfuryl fluoride (SO_2F_2).[6] However, there are several limitations due to these the toxicity of these agents.

Our group has discovered that certain amides like **3** catalyze the transformation of alcohols **1** into alkyl chlorides **5** as Lewis bases by means of *in situ* generated Vilsmeier-Haack type intermediates like **A**. [7]. Based on this finding, we wish to report a novel method for the formylation of alcohols under mild conditions in enhanced sustainability.[8] Noteworthy, this protocol is also applicable to highly reactive benzylic and allylic substrates, which readily react further to the respective chloro alkanes, by means of anion exchange.



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