ENANTIOSELECTIVE SYNTHESIS OF HETEROCYCLIC NUCLEOSIDES THROUGH ASYMMETRIC [3+2] ANNULATION OF α−PURINE-SUBSTITUTED ACRYLATES WITH NITRONES

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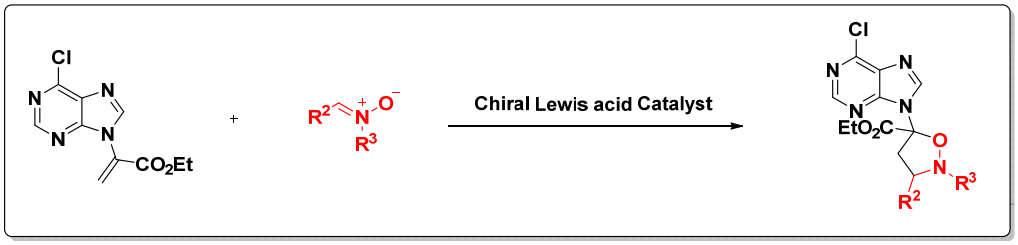
Nucleoside analogues are a valuable source of antiviral agents, acting as enzyme inhibitors or chain terminators in RNA or DNA biosynthesis. [1] During the past decade, chemically modified nucleosides and nucleotides have attracted considerable attention and numerous therapeutically important derivatives have been developed because of their outstanding antivirus and antitumor activities exhibited. [2-3] In recent years, many reports about enantioselective synthesis of nucleoside derivatives have been disclosed. [4-6] However, most of them are about the synthesis of carbocyclic nucleosides, the reports of the synthesis of heterocyclic nucleosides are very limited. Therefore, the development of new synthetic strategy for the synthesis of chiral heterocyclic nucleosides is still highly desirable. Herein, we report an efficient Lewis acid catalyzed 1,3-diplor cycloaddition of α- Purine-substituted acrylates with nitrones for the synthesis of heterocyclic nucleosides. The reaction affords a practical and efficient method for the enantioselective synthesis of heterocyclic nucleosides. Furthermore, the products could undergo diverse transformations to afford interesting and potentially useful chiral heterocyclic nucleosides.



Scheme 1. Synthesis of chiral heterocyclic nucleosides

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