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Room-Temperature Electrophilic 5-endo-dig Chlorocyclization of Alk-3-yn-1-ones with the Use of Pool Sanitizer: Synthesis of 3-Chlorofurans and 5-Chlorofuropyrimidine Nucleosides

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## Synthesis of 3-Chlorofurans and 5-Chlorofuropyrimidine Nucleosides

Significance: Reported is a simple and convenient procedure for electrophilic chlorocyclization of propargylic ketones leading to 3-chlorofurans in excellent preparative yields. The reaction was extended for the synthesis of furopyrimidine nucleosides from readily available 5-alkynyl-2'-deoxyuridine with equally good results. As a further application, the resulting 3-chlorofurans were subjected to typical Fu conditions for the Suzuki-Miyaura reaction to afford 3-arylfuran derivatives.

Comment: The present method provides unsymmetrical 2,5-disubstituted 3-halofuranes with excellent regiocontrol and in high yields. Previously, this family of compounds was prepared by direct halogenation which generally leads to mixtures of regioisomers (C. W. Rees, T.-Y. Yue J. Chem. Soc., Perkin Trans. 1 1997, 2247). Furthermore, and perhaps more significantly, the method is an excellent pathway to substituted furopyrimidine nucleosides which constitute potent and selective antiviral agents with high specific activity against varicellazoster virus (VZV) (C. McGuigan, J. Balzarini Antiviral Res. 2006, 71, 149).

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Synthesis of Heterocycles

Key words

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