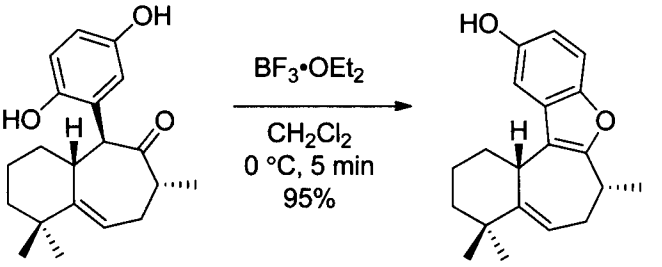
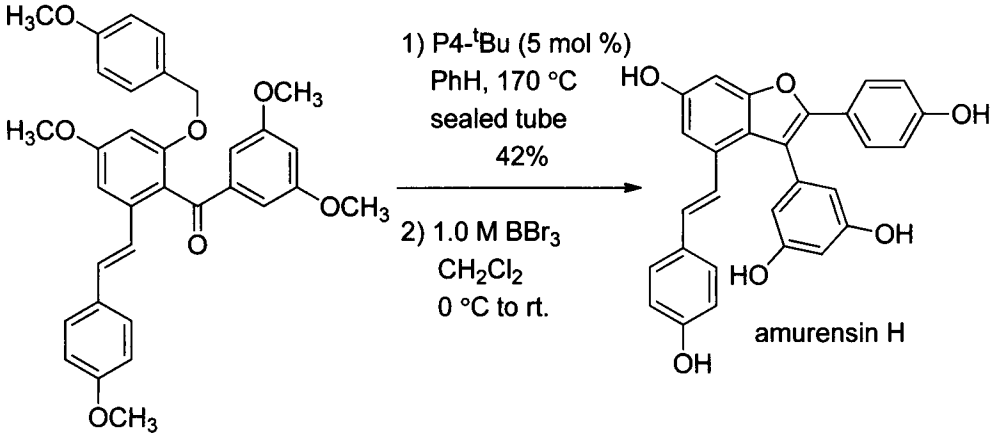
Mehta and Likhite[62] used a Lewis acid-catalyzed cyclization route to construct the benzofuran ring system of frondosin B, an IL-8 antagonist, and an inhibitor of protein kinase C (PKC). Treatment of a highly functionalized chiral ketone precursor with boron trifluoride-diethyl etherate gave the corresponding furan in 95% yield over two steps. This strategy was also employed by Ovaska and Li in their synthesis of the same compound.[63]



frondosin B

Phosphazene and its derivatives have been used as bases to catalyze the synthesis of highly substituted benzofurans. Krause and co-workers used phosphazenes in a key step of their total synthesis of amurensin H, an anti-inflammatory compound.[64] Treatment of a highly substituted benzophenone precursor with P4-^{t}Bu in benzene gave amuresin H after deprotection of the methyl esters with boron tribromide.



amurensin H

Transition Metal-Catalyzed Cyclizations

There are a few reports using transition metal-catalyzed ring-closure reactions to produce benzofuran derivatives. One example, reported by Chen and Dormer, used a copper-catalyzed protocol to prepare several 2,3-disubstituted benzofuran derivatives.[65] Treatment of the β-ketoester, ethyl 2-