STRONG BASE INDUCED CYCLOADDITION OF HOMOPHTHALIC ANHYDRIDES AND THEIR HETEROAROMATIC ANALOGUES LEADING TO POLYCYCLIC AROMATIC COMPOUNDS

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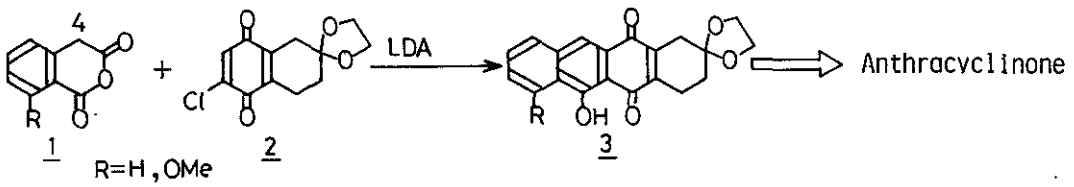
Recently we have reported that strong base induced cycloaddition of homophthalic anhydride (1) to the appropriately functionalized quinone (2) produced a high yield of the tetracyclic compound (3) leading to the anthracyclinone, in which the nucleophilic end (C-4 position) of 1 attacked on the unsubstituted olefinic carbon of 2 regioselectively [J. Org. Chem., 47, 4376 (1982)].



In the synthesis of the compounds related to anthracyclinones, we are interested in the replacement of the benzene ring of 1 by another heteroaromatic ring such as indole or benzofuran. All cycloadditions of these heteroaromatic analogues (4) to various dienophiles (5) proceeded under a mild condition to give the corresponding adducts (6), regioselectively: the anhydrides (4a,b) reacted with 2 to give the pentacyclic compounds (7a,b). Scope and limitation of these cycloadditions will be presented.