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"Reactivity pattern of α-bromo & α,α-dibromoderivative of carbonyl compounds"

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INTRODUCTION: The synthetic utility of α-halocarbonyl compounds is well known for more than a century. They have been widely used as versatile intermediates in organic synthesis. However, there has been considerable recent interest in the development of alternative approaches avoiding the use of these reagents because of their highly lachrymatory properties. In an important development, it has been shown that α,α-dihalocarbonyl compounds behave as synthetic equivalent of their corresponding α-halocarbonyl compounds.

α-Haloketones (α-HK)

α-Haloketones (α-HK), first obtained and described as early as the end of the eighteenth century, have attracted increasing attention in view of their high reactivity as building blocks for the preparation of compounds of various classes due to their selective transformations with different reagents. A myriad of biologically active heterocyclic systems and a number of other useful organic compounds have been synthesized, starting from α-HK. The following description presents general considerations on the reactivity of α-HK with nucleophiles.

General Reactivity Pattern

The well-known reactivity of α-HK towards nucleophilic reagents has been the subject of several discussions. On treatment of an α-HK with various nucleophiles, the attack can take place at six possible electrophilic sites: The nucleophile is able to attack the carbon of the carbonyl function (position 1), the carbon atom carrying the halogen atom (position 2) and