REACTIONS OF α-KETOSULFENES WITH NITRONES

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The reactions of benzoylsulfene 1 and two cyclic α-ketosulfenes 2 and 3, generated in situ from the corresponding sulfonyl chlorides and triethylamine, with various nitrones have been investigated.

Reaction with C,N-Diarylnitrones.

α-Ketosulfenes (1-3) reacted with nitrones, ArCH=N(O)Ph, to produce the corresponding rearranged adducts, seven-membered cyclic azasultones, accompanied by the formation of by-products, which are arisen from the rearranged adducts with the elimination of the benzaldehyde (ArCHO) respectively.

Stereochemistry of the rearranged adduct and the reaction pathways are presented.

Reaction with Cyclic Nitrones.

The reaction of 1-3 with 1-pyrroline 1-oxides afforded the corresponding enamino ketones and/or β-iminosulfonic acids; the relative yields were found to be strongly affected by the nature of solvents. For example, 2 reacted with 5,5-dimethyl-1-pyrroline 1-oxide in dioxane, THF, and tetrahydropyrane to yield the enamino ketone as a sole product, whereas the same reaction in acetonitrile, glyme, dichloromethane, and toluene afforded the β-iminosulfonic acid as a major product.

The pathways for the formation of the products are discussed.