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作品編號	030038
參展科別	化學
作品名稱	Interaction of the unsaturated sulfones with azinium ylides
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Abstract

Because of the presence of an activated multiple carbon-carbon bond, α,β -unsaturated sulfones are high-reactive compounds which are widely used in organic synthesis. These compounds readily undergo the reactions of nucleophilic addition and pericyclic processes. At the current moment, a wide range of 1,3-dipolar cycloaddition reactions with α,β -unsaturated sulfones as dipolarophilic systems is known. However the interaction of α,β -unsaturated sulfones with azinium ylides is less studied and limited to only a few examples. In the present study, the interaction between a number of stable isoquinolinium and pyridinium ylides with aliphatic and aromatic vinylsulfones has been investigated. We considered the regioselectivity of these reactions. Mostly cycloadditions of isoquinolinium ylides to α,β -unsaturated sulfones led to the mixtures of isomeric sulfonyltetrahydroindolizines in different ratios. Also we found several examples of high-regioselective addition. The stereochemical result of the cycloaddition was examined by methods of 2D correlational ^1H -NOESY NMR spectroscopy and X-ray crystallographic analysis. The process of formation of major regioisomer of cycloaddition N-phenacylisoquinolinium ylide to ethylvinylsulfone was highly stereoselective. The series of new sulfonyltetrahydroindolizines with potential bioactivity were obtained. The structure of all products was proved by IR and ^1H NMR.

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The candidate presents an elegant synthetic method about the cycloaddition of α,β -unsaturated sulfones with azinium ylides. Through detail structural analysis by 2D-NMR , the stereo and regioselectivity of the reactions have been clearly elucidated. The contests should he publishable in international journals of organic synthesis.