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REACTIONS OF SULFOXONIUM ALLYLIDE AND NITRILE OXIDE

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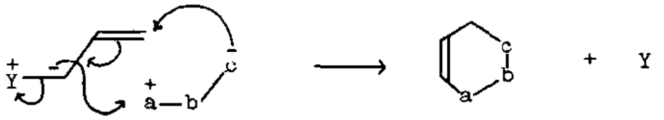
Cycloaddition reactions of allyl ylides with 1,3-dipolar compounds, *viz.* [3+3]cycloaddition, may provide a new route to synthetic methods for heterocyclic compounds. In this report, we studied on reactions of dimethylsulfoxonium allylides (**1**) with nitrile oxide.



Reaction of dimethylsulfoxonium 3-ethoxycarbonyl-2-phenylallylide (**1a**) with ethyl chloroglyoxylate oxime (**2a**) in the presence of triethylamine afforded ethyl 5-ethoxy-3-phenylfuran-2-ylglyoxylate oxime (**3a**) as a main product in 68 % yield and the cycloaddition product of 6H-3,6-diethoxycarbonyl-5-phenyl-1,2-oxazine (**4a**) in 9 % yield. Treatment of **3a** with catalytic amounts of *p*-toluenesulfonic acid gave the 1,2-oxazine (**4a**) in 80 % yield, which was directly obtained from the cycloaddition of the allyl ylide (**1a**) and the nitrile oxide. On the other hand, reaction of **3a** with excess *p*-toluenesulfonic acid yielded 3-aza-2,6-dioxa-4-ethoxycarbonyl-1-phenylbicyclo[3.3.0]oct-3-en-7-one (**5a**) in 81 % yield. Heating **4a** with triethylamine in benzene under reflux afforded 3,5-diethoxycarbonyl-3-phenyl-4-pyrrolin-2-one (**6a**) in 90 % yield by involving migration of the ethoxycarbonyl group.