

Syntheses of Heterocyclic Compounds by the Use of Ylides Stabilized
by Diketovinyl Groups

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A variety of ylides stabilized by diketovinyl groups, $X^+-Y^--CH=C(COR)_2$ (X =pyridine, Me_2S^+O , Me_2S ; $Y=C$ or N ; $R=OEt$ or Me), were prepared and their chemical properties were examined.

The syntheses of the ylides were readily accomplished by treatment of ylides (X^+-Y^--H) with diethyl ethoxymethylenemalonate or 3-ethoxymethylene-2,4-pentanedione

The ylides thus obtained were found to be useful to the syntheses of various heterocyclic compounds. For examples, heating pyridinium 3,3-diacetyl-1-benzoyl- (or ethoxycarbonyl)allylides in refluxing xylene or mesitylene gave indolizine derivatives. Similar treatment of N -(2,2-diethoxycarbonylvinyl)iminopyridinium betaines gave ethyl pyrazolo[1,5-*a*]pyridine-3-carboxylates, while N -(2,2-diacetylvinyl)imino pyridinium betaines underwent N - N bond cleavage to give 4-acetyl-5-methylisoxazole. Treatment of dimethylsulfoxonium 1-ethoxycarbonyl-3,3-diacetylallylide with sodium hydride gave 4-acetyl-1,3-dimethyl-6-ethoxycarbonylthiabenzene-1-oxide, while heating of the ylide in refluxing xylene resulted in the formation of ethyl 3-acetyl-2-methylfuran-5-carboxylate. The same furan was also obtained by heating dimethylsulfonium 1-ethoxycarbonyl-3,3-diacetylallylide in refluxing mesitylene.