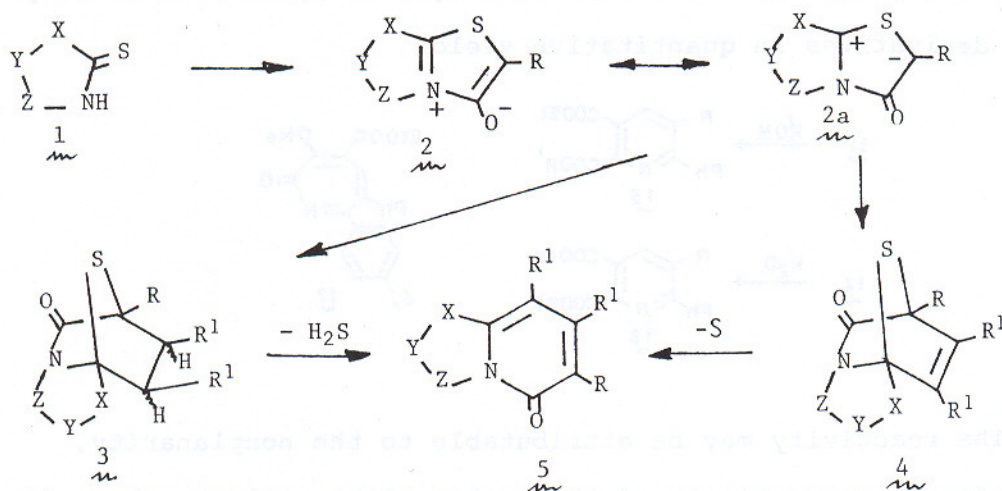


# RING ANNULATION WITH HETEROCYCLIC YLIDES. ANNULATION OF PYRIDONES TO HETEROCYCLIC THIONES

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Incorporation of the thiocarbonyl ylide dipole into a bicyclic heterocyclic system is possible by the conversion of the cyclic thione 1 into the ring-fused mesoionic system 2. The thiocarbonyl ylide dipole 2a undergoes cycloaddition with both olefinic and acetylenic electron-deficient dipolarophiles so that, after extrusion of hydrogen sulfide and sulfur from the initial 1:1 cycloadducts, 3 and 4, respectively, the ring-fused pyridone 5 is formed.



Annulation of pyridones to the imidazole, 1,2,4-triazole, thiazole and 1,3,4-thiadiazole ring systems utilizing appropriate thione derivatives of these ring systems for the formation of the bicyclic systems corresponding to 2, and their subsequent cycloaddition reactions, will be described.

Limitations of this method of ring annulation will be discussed, as well as factors affecting the stability and reactivity of the bicyclic mesoionic systems 2.

#### References

- (1) K. T. Potts and D. R. Choudhury, J. Org. Chem., **43**, 2697, 2700 (1978).
- (2) K. T. Potts and S. Kanemasa, J. Org. Chem., in press.