Reissert Compound Studies. XL. The First Monocyclic Reissert Compounds

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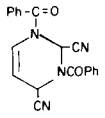
Pyridazine and pyrimidine have been reacted with trimethylsilyl cyanide and benzoyl chloride to give the first examples of Reissert compounds derived from monocyclic systems.

J. Heterocyclic Chem., **18**, 443 (1981).

Sir:

While the formation of Reissert compounds (1-4) from quinolines, isoquinolines, phthalazines, and other diaza-systems (4) has provided a very useful synthetic intermediate (5), the extension of this work to monocyclic systems has not been actively persued because of the observation that pyridine (1,2) does not form a Reissert compound.

We have now found that pyrimidine reacts at room temperature with trimethylsilyl cyanide, benzoyl chloride, and a catalytic amount of aluminum chloride in anhydrous methylene chloride to give a 59% yield of the di-Reissert compound **1** (6) m.p. 148-151. The formation of 1,3-dibenzoyl-2,4-dicyano-1,2,3,4-tetrahydropyrimidine (**1**) from pyrimidine is analogous to the formation of the Reissert compound **2** from quinazoline (7).



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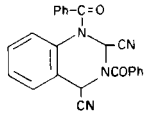

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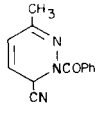
A similar reaction of 3-methylpyridazine with trimethylsilyl cyanide and freshly distilled benzoyl chloride gave a 41% yield of the pyridazine Reissert compound **3** (6), m.p. 122-124°. When either pyridazine or 3-methylpyridazine was reacted under the above conditions with undistilled benzoyl chloride the deep red Reissert salts **4** (6) and **5** (6), m.p. 171-173° and 179-181°, respectively, were obtained. Confirmation of this structure, which is analogous to the salt obtained by acid treatment of the phthalazine Reissert compound (8), was had by reaction of **4** with dimethylacetylenedicarboxylate in anhydrous dimethyl formamide at 100° to give **6** (6) m.p. 179-180°.



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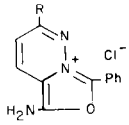
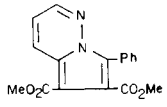


4 R = H
5 R = CH_3



6

The reactions of these new and novel Reissert compounds are being studied in detail.

REFERENCES AND NOTES

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(2) F. D. Popp, *Adv. Heterocyclic Chem.*, **9**, 1 (1968).
(3) F. D. Popp, *ibid.*, **24**, 187 (1979).
(4) F. D. Popp, *Heterocycles*, **14**, 1033 (1980).
(5) F. D. Popp, *ibid.*, **1**, 165 (1973).
(6) All new compounds exhibited satisfactory spectral properties and gave satisfactory C, H, and N analyses.
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(8) D. Bhattacharjee and F. D. Popp, *ibid.*, **17**, 1035 (1980).

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