〔Tetrahedron, **46**, 3431 (1990)〕

Novel Intramolecular Rearrangement of 5-Carbamoyluracils into Barbituric Acids.

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Novel Ring Transformation of uracil into barbituric acid was found. Heating of 5-carbamoyl- and 5-thiocarbamoyl-3-methyl-1-phenyluracil derivatives in ethanolic sodium ethoxide causes a novel intramolecular rearrangement to give 5-anilinomethylenebarbituric acids and 5-anilinomethylene-4-thiobarbituric acid, respectively. Analogous treatment of 5-cyano-3-methyl-1-phenyluracil with sodium hydrosulfide in stead of sodium ethoxide gave the same 4-thiobarbituric acid.

〔J. Chem. Soc., Perkin Trans. 1, **1990**, 123〕

Novel Ring Transformations of 5-Cyanouracils into 2-Thiocytosines, 2,4-Diaminopyrimidines, and Pyrimido [4,5-*d*] pyrimidines by the Reaction with Thioureas and Guanidines.

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Novel ring transformations were found in the reaction of 5-cyanouracils with thioureas and guanidines. The reaction of 5-cyanouracils with thioureas and guanidines causes novel pyrimidine-to-pyrimidine ring transformations. Thus, 1,3-disubstituted 5-cyanouracils react with thiourea and guanidines to give the corresponding 5-carbamoyl-2-thiocytosines and 2,4-diamino-5-carbamoylpyrimidines, respectively. On the other hand, 5-cyanouracils possessing a phenyl group at the 1-position react with thioureas to give 7-aminopyrimido〔4,5-*d*〕pyrimidine-2,4-diones.

〔J. Chem. Soc., Perkin Trans. 1, **1990**, 367〕

Novel Reaction of Uracil Derivatives Possessing Electron-withdrowing Groups at the 5-Position with Amines: Exchange Reaction between the N^1-Portion of Uracils and Amines.

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The reaction of 1,3-disubstituted uracils possessing an electron-withdrawing group such as nitro, carbamoyl, and cyano at the 5-position with primary amines resulted in the exchange of the N^1-portion of the uracil ring with the amine moiety. The exchange reactions were influenced by the nature of substituents at the 5- and N^1-positions. The reaction sequence is explained in terms of addition, ring-opening, and ring-closure.