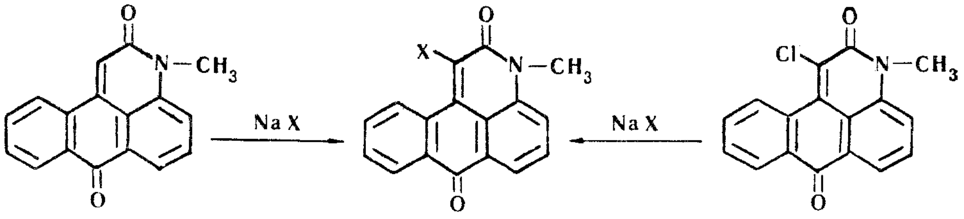
properties, melting point, and IR spectrum with 1-hydroxy-N-methylanthrapyridone (III), prepared by the action of ethanolic alkali on 1-chloro-N-methylanthrapyridone (IV) by the method of [2].

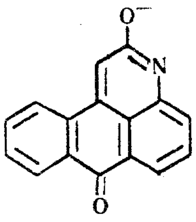


II

III X = OH;
VI X = CN

IV

The unsubstituted anthrapyridone I does not react with alkalies, which, actually, is bound up with formation of the enolate V.


V

The patent literature [3] states that heating of N-methylanthrapyridone with potassium cyanide in ethylene glycol leads to formation of a nitrile group, but the structure of the reaction product was not established. 1-Cyano-N-methylanthrapyridone (VI), obtained by reacting 1-chloro-N-methylanthrapyridone with sodium cyanide, was identical in properties and IR spectrum with the compounds synthesized as described in [3]. Thus the results given show that anthrapyridones can react with nucleophilic reagents to give the corresponding 1-derivatives.

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Scientific Research Institute for Intermediates and Dyes,
Moscow

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REACTION OF THYMINE AND 5-FLUOROURACIL WITH ACRYLONITRILE

R. A. Paegle, M. Yu. Lidak, and Yu. P. Shvachkin

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It is known [1] that acrylonitrile reacts smoothly with uracil in liquid ammonia at −50° C, giving only β-(uracil-N_3) propionitrile.* Reaction with thiouracil proceeds in exactly the same way [2].

Continuing research on methods of obtaining N-substituted hydropyrimidine systems, of interest as potential nuclein exchange antimetabolites, and as potential antiblastic compounds, a study has been made of the reaction of thymine and 5-fluorouracil with acrylonitrile. This gave respectively the hitherto unknown β-(thyminyl-N_3) propionitrile (I) and β-(5-fluorouracil-N_3) propionitrile (II).

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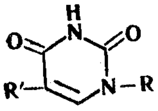
*Uracil is regarded as 2, 6-dioxotetrahydropyrimidine.



I–IV

I $R=CH_2CH_2CN$; $R'=CH_3$; II $R=CH_2CH_2CN$; $R'=F$;
III $R=CH_2CH_2COOH$; $R'=CH_3$; IV $R=CH_2CH_2COOH$; $R'=F$.

Structure I–IV was shown by chemical reactions and UV spectra, determined at pH 1 and pH 12. The latter does not reveal appreciable differences from previously investigated N_3-substituted uracils [1-3]. Hence it can be concluded that the side chain at N_3 in I–IV is a uracil ring.

Compounds Prepared

Compound No.	Mp, ° C	R_f in the system		UV absorption				Yield, %
		n-C_4H_9OH—CH_3CO_2H—H_2O (4 : 1 : 5)	i-C_3H_7OH—NH_4OH—H_2O (14 : 1 : 5)	0.1 N HCl		0.01 N NaOH		
				λ_{max}, mμ	lgε	λ_{max}, mμ	lgε	
I	195—196	0.71	0.68	270	4.14	265	3.85	93
II	233—234	0.68	0.57	269—270	3.93	268—269	3.81	84
III	180	0.69	0.52	269	3.94	270—271	3.82	59
IV	185	0.59	0.27	264—5	4.03	270	3.82	52

Investigation of I–IV continues.

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Institute of Organic Synthesis, AS LatvSSR
Lomonosov Moscow State University