$CH_3OCOCH{=}C{=}O]^+$, 103 (10) $[C_6H_5C{\equiv}N]^+$, 77 (44) $[C_6H_5]^+$. The spectral data agree with those available for 2-(alkoxycarbonylmethyl)-2-hydroxy-1,5-diaryl-2,3-dihydropyrrol-3-ones [3].

Compound IIb. The yield was 77%, with mp 149-150°C (with decomposition).

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SYNTHESIS OF 4,2'-ANHYDRO-4-HYDROXY-3-(α-D-XYLOFURANOSYL)HEXAHYDROPYRIMIDINE-2-THIONES

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It has been shown earlier [1-3] that in the reaction of 2,3-O-isopropylideneribofuranosylamine p-toluenesulfonate with β-isothiocyanatoaldehydes in the presence of bases, 4,5'-anhydro-4-hydroxy-3-(2,3-O-isopropylidene-β-D-ribofuranosyl)hexahydropyrimidine-2-thiones are formed, which when heated in an aqueous acetic acid solution, successively convert into 4,5'-anhydro-4-hydroxy-3-(β-D-ribofuranosyl)hexahydropyrimidine-2-thiones, 4-hydroxy-3-(D-ribosyl)hexahydropyrimidine-2-thiones, and finally, 4,2-anhydro-4-hydroxy-3-(α-D-ribofuranosyl)hexahydropyrimidine-2-thiones. The formation of 4,5'- and 4,2'-anhydroribosides possibly proceeds by nucleophilic substitution of the hydroxyl group at the $C_{(4)}$ carbon atom of the pyrimidine ring by the action of the free hydroxy group of the sugar residue in the molecules of the intermediately formed 4-hydroxyhexahydropyrimidine-2-thione $N_{(3)}$-ribosides. As an extension of the investigations carried out in [1-3], it was of interest to study the reaction of 3,5-O-isopropylidenexylofuranosylamine p-toluenesulfonate (I), containing a free hydroxyl group at the $C_{(2)}$ carbon atom of the sugar residue, with β-isothiocyanatoaldehydes.

We found that in the reaction of compound I with 3-isothiocyanatopropanal (II) in chloroform in the presence of triethylamine at 0°C, 4,2'-anhydro-4-hydroxy-3-(3',5'-O-isopropylidene-α-D-xylofuranosyl)hexahydropyrimidine-2-thione (IIIa) is formed in a yield of 59%, mp 220-220.5°C (from methanol), $[\alpha]_D^{21}$ +156° (c = 0.855, DMSO). The reaction proceeds stereoselectively, and compound IIIa is obtained in the form of a single diastereomer, having, according to the PMR spectroscopy data, an (R)-configuration of a new chiral center at the $C_{(4)}$ carbon atom.

We showed that the isopropylidene protection in xyloside IIIa is very labile and is readily removed by dilute acetic acid or by alcohols in the presence of hydrochloric acid, as a result of which (4R)-4,2'-anhydro-4-hydroxy-3-(α-D-xylofuranosyl)hexahydropyrimidine-2-thione (IIIb) is formed in 82-98% yields, mp 164-164.5°C (from alcohol), $[\alpha]_D^{21}$ +160° (c = 0.77, DMSO) (see top of following page)

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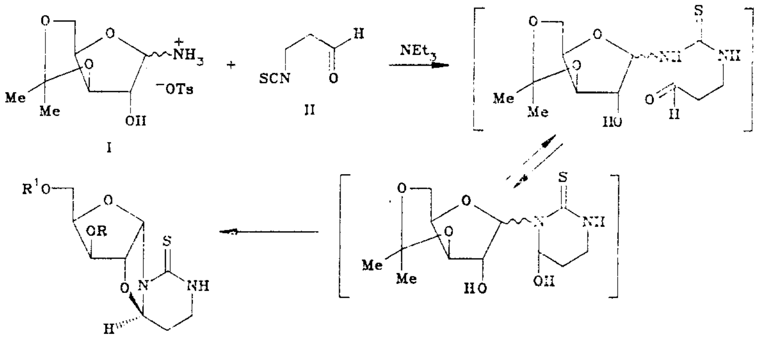

III a,b

III a R-R^1=Me$_2$C; b R=R^1=H

The structure of the synthesized compounds IIIa, b was confirmed by the IR, UV, and PMR spectra, the optical rotation, and mass spectral data, as well as by the results of elemental analysis data.

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