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LETTERS TO THE EDITOR

New Synthetic Approach to Phosphorylated 2-Aminothiazoles

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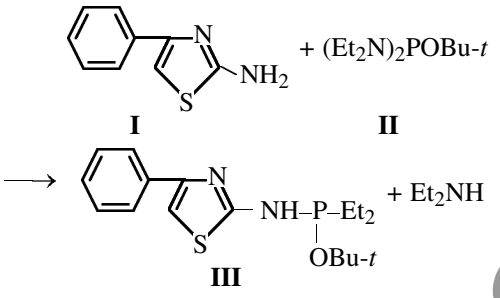
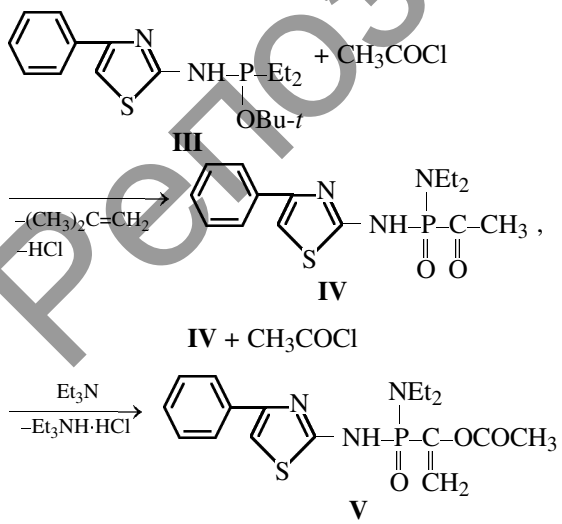
It was shown previously that 2-amino-4-phenylthiazole (**I**) easily reacts with *tert*-butyl tetraethylphosphorodiamidite according to the transamidation scheme to form *tert*-butyl *N,N*-diethyl-*N*'-(4-phenylthiazol-2-yl)phosphorodiamidite (**III**) [1].



I **II** **III**

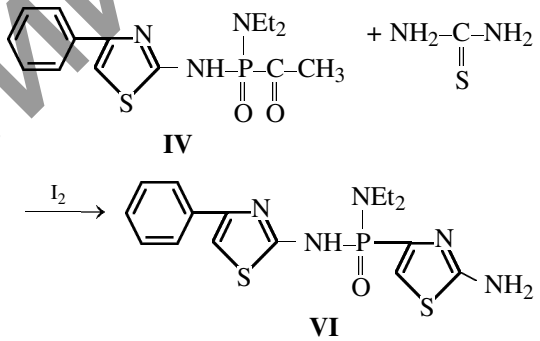
Compound **III** was reacted with acetyl chloride to find that the reaction proceeds regioselectively and results in formation of acetylphosphonic diamide **IV**. The structure of this product suggests existence of the enolic form, which was experimentally proved by the reaction with 2 mol of acetyl chloride.



III **IV** **V**

Acetylphosphonic diamide **IV** presents interest as a promising starting material for synthesis of new 2-aminothiazole derivatives which are assuming increasing significance in pharmaceutical industry, biochemistry, and technics.

Prolonged heating of compound **IV** with thiourea in presence of crystalline iodine followed by conventional workup gave *N,N*-diethyl-*N*'-(4-phenylthiazol-2-yl)(2-aminothiazol-2-yl)phosphonic diamide (**VI**).



***N,N*-Diethyl-*N*'-(4-phenylthiazol-2-yl)(2-aminothiazol-2-yl)phosphonic diamide (VI).** Yield 78%, mp 175°C. IR spectrum, ν, cm^{-1}: 419, 1518, 1623 (C_6H_5), 1443 (C=N), 3436 (NH), 3317 and 3285 (NH_2), 1198 (P=O). ^{1}H NMR spectrum, δ, ppm: 7.2 s (1H, thiazol C^{5}H), 7.40–7.48 m (5H, C_6H_5), 1.23 t (6H, CH_3, $^3J_{HH}$ 7 Hz), 2.52 m (4H, CH_2N), 7.75 d (1H, NH, $^2J_{PH}$ 12 Hz). Found, %: C 48.45; H 5.42; N 17.78; P 7.69; S 16.98. $C_{16}H_{20}N_5OPS_2$. Calculated, %: C 48.84; H 5.12; N 17.80; P 7.87; S 16.30.

The IR spectra were recorded on a Specord IR-75 spectrometer in thin layer in the range 3700–400 cm^{-1} and on a Nicolet Avatar-360 device. The ^{1}H NMR spectra were taken on a Bruker DRX-500 (500 MHz) spectrometer against internal TMS.

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