NEW SYNTHESIS OF 5-(5-NITROFUR-2-YL)THIAZOLE

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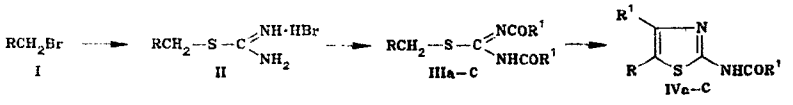
The synthesis of 2-halo derivatives of 5-(5-nitrofur-2-yl)thiazole by the interaction of β-(5-nitrofur-2-yl)vinylamine and chlorocarbonylsulfenyl chloride with subsequent treatment of the resulting thiazole with phosphorus pentachloride was described previously in [1].

We have successfully synthesized 2-acylamino derivatives of 5-(5-nitrofur-2-yl)thiazole by the following scheme, which is different in principle:



I—IV R = 5-nitrofur-2-yl; a R' = Me; b R' = Et; c R' = Ph

Compounds (IVa-c) were yellow crystals poorly soluble in the majority of solvents.

2-Acetylamino-4-methyl-5-(5-nitrofur-2-yl)thiazole (IVa). Yield 83%, mp 260-262°C. νC=O 1668 cm^{-1}. PMR spectrum, δ: 2.13 (s, 3 H, 4-CH_3), 2.32 (s, 3 H, $COCH_3$), 6.50 and 7.10 ppm (AX quartet of furan ring protons, J_{AX} = 4.0 Hz).

5-(5-Nitrofur-2-yl)-2-propionylamino-4-ethylthiazole (IVb). Yield 71%, mp 240-241°C. νC=O 1673 cm^{-1}. PMR spectrum, δ: 0.9 (t, 3 H) and 2.4 (q, 2 H, J = 7.8 Hz, 4-C_2H_5), 1.1 (t, 3 H) and 2.7 (q, 2 H, J = 8.0 Hz, C_2H_5CO), 6.55 and 7.25 ppm (AX quartet of furan ring protons, J_{AX} = 4.0 Hz).

2-Benzoylamino-5-(5-nitrofur-2-yl)-4-phenylthiazole (IVc). Yield 60%, mp 237-238°C, νC=O 1670 cm^{-1}. PMR spectrum, δ: 7.2-7.7 (m, 10 H, C_6H_5 and COC_6H_5), 6.05 and 6.95 ppm (AX quartet of furan ring protons, J_{AX} = 4.0 Hz).

The mass spectra of thiazoles (IVa-c) contained peaks for the appropriate molecular ions the fragmentation of which confirmed the proposed structures.

The data of elemental analysis of compounds (IVa-c) corresponded to those calculated.

LITERATURE CITED

1. A. Tanaka and T. Usui, Chem. Pharm. Bull., 28, 3576 (1978).

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