ISSN 1070-4280, Russian Journal of Organic Chemistry, 2009, Vol. 45, No. 12, pp. 1877–1878. © Pleiades Publishing, Ltd., 2009.
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SHORT COMMUNICATIONS

Recyclization of 3-Aroylpyrrolo[1,2-*a*]quinoxaline-1,2,4(5*H*)-triones by the Action of Benzohydrazide

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Received July 10, 2009

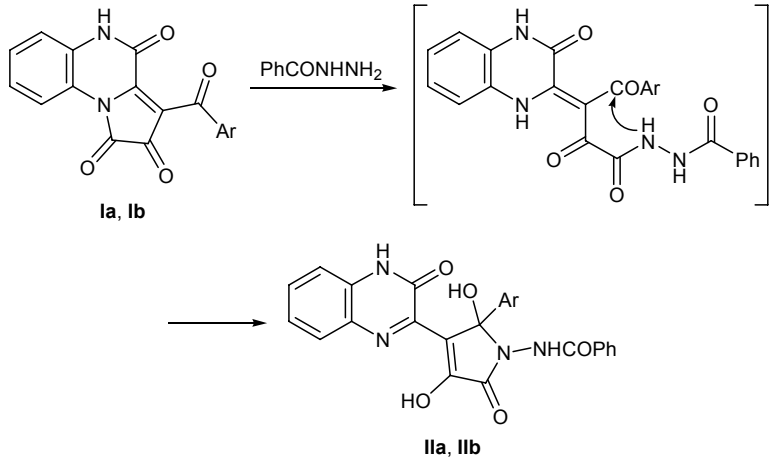
DOI: 10.1134/S1070428009120276

Reactions of 3-aroylpyrrolo[1,2-*a*]quinoxaline-1,2,4(5*H*)-triones with hydrazides were not reported previously. We have found that 3-aroylpyrrolo[1,2-*a*]-quinoxaline-1,2,4(5*H*)-triones **Ia** and **Ib** react with an equimolar amount of benzoic acid hydrazide on heating in boiling anhydrous acetonitrile (reaction time 1–3 min; the progress of the reactions was monitored by thin-layer chromatography) to give *N*-[2-aryl-2,4-dihydroxy-5-oxo-3-(3-oxo-3,4-dihydroquinoxalin-2-yl)-2,5-dihydro-1*H*-pyrrol-1-yl]benzamides **IIa** and **IIb**. The structure of the products was proved by X-ray analysis.

Compounds **IIa** and **IIb** are likely to be formed as a result of initial attack by the nitrogen atom of the primary amino group in benzohydrazide on the carbon atom in position *1* of the pyrroloquinoxaline system. The subsequent cleavage of the pyrrole ring in **I** at the C^1–N^{10} bond and attack by the same nitrogen atom on the carbonyl carbon atom in the aroyl group leads to closure of new pyrrole ring.

***N*-[2,4-Dihydroxy-5-oxo-3-(3-oxo-3,4-dihydroquinoxalin-2-yl)-2-phenyl-2,5-dihydro-1*H*-pyrrol-1-yl]benzamide (IIa).** A solution of 1.0 mmol of benzohydrazide was added to a solution of 1.0 mmol of compound **Ia** in 30 ml of anhydrous acetonitrile. The mixture was heated for 2 min under reflux and cooled, and the precipitate was filtered off and recrystallized from MeCN. Yield 59%, mp 229–231°C (decomp.). IR spectrum, ν, cm^{-1}: 3370, 3150 (OH, NH); 1760 (C^5=O); 1680 ($C^{3\prime}$=O); 1650 (CONH). ^{1}H NMR spectrum, δ, ppm: 6.60 s (1H, 2-OH), 7.14–7.95 m (14H, H_{arom}), 10.50 s (1H, CONH), 13.26 s (1H, 4′-H), 14.50 s (1H, 4-OH). Found, %: C 66.13; H 4.03; N 12.38. $C_{25}H_{18}N_4O_5$. Calculated, %: C 66.08; H 3.99; N 12.33.

***N*-[2,4-Dihydroxy-2-(4-methylphenyl)-5-oxo-3-(3-oxo-3,4-dihydroquinoxalin-2-yl)-2,5-dihydro-**



Ia, **Ib** → **IIa**, **IIb**

Ar = Ph (**a**), 4-MeC_6H_4 (**b**).

1*H*-pyrrol-1-yl]benzamide (IIb) was synthesized in a similar way. Yield 91%, mp 218–220°C (decomp., from dioxane). IR spectrum, ν, cm^{-1}: 3380, 3130 (OH, NH); 1725 (C^5=O); 1685 ($C^{3'}$=O); 1655 (CONH). ^{1}H NMR spectrum, δ, ppm: 2.25 s (3H, CH_3), 6.61 s (1H, 2-OH), 7.05–7.79 m (13H, H_{arom}), 10.43 s (1H, NHCO), 13.31 s (1H, 4′-H), 14.54 s (1H, 4-OH). Found, %: C 66.43; H 4.22; N 11.99. $C_{26}H_{20}N_4O_5$. Calculated, %: C 66.66; H 4.30; N 11.96.

The IR spectra were recorded on an FSM-1201 spectrometer from samples dispersed in mineral oil. The ^{1}H NMR spectra were obtained on a Bruker AM-400 spectrometer (400 MHz) from solutions in DMSO-d_6 using TMS as internal reference.

This study was performed under financial support by the Russian Foundation for Basic Research (project nos. 07-03-96036, 08-03-01032).