SHORT
COMMUNICATIONSReaction of 2,3-Dioxopyrrolo[2,1-*a*]isoquinolines with
Naphthalene-2,3-diamine

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We previously studied reactions of 2,3-dioxopyrrolo[2,1-*a*]isoquinolines with *o*-phenylenediamine [1, 2]. Reactions of these compounds with bulkier binucleophiles were not reported. While performing studies in this line, we found that dioxopyrrolo[2,1-*a*]isoquinoline **I** reacts with naphthalene-2,3-diamine on heating in boiling glacial acetic acid to produce fused hexacyclic system **III**. By reaction of naphthalene-2,3-diamine with analogous tetracyclic compound **II** of the benzo[*f*]isoquinoline series we obtained heptacyclic structure **IV**. Compounds **III** and **IV** attract interest as new synthons, biologically active substances, and luminophors [3].

I, III, R = H; **II, IV**, RR = –CH=CH–CH=CH–.

6,6-Dimethyl-5,6-dihydrobenzo[*g*]benzo[7,8]indolizino[2,3-*b*]quinoxaline (III). A mixture of 2.27 g (10 mmol) of compound **I** and 1.58 g (10 mmol) of naphthalene-2,3-diamine in 10 ml of glacial acetic acid was heated for 30 min under reflux, the progress of the reaction being monitored by TLC. The mixture was then cooled to 20°C and diluted with 100 ml of water, and the precipitate was filtered off, washed on a filter

with 25% aqueous ammonia and water, dried, and recrystallized from isopropyl alcohol. Yield 2.31 g (66%), yellow crystals, mp 222–224°C. ¹H NMR spectrum, δ, ppm: 1.92 s (6H, CH₃), 3.13 s (2H, 6-H), 7.00 s (1H, 1-H), 7.21–8.58 m (10H, H_{arom}). Mass spectrum, *m/z* (*I*_{rel}, %): 349 (67) [*M*]⁺, 334 (45) [*M* – CH₃]⁺, 319 (55) [*M* – 2CH₃]⁺. Found, %: C 82.43; H 5.41; N 12.12. C₂₄H₁₉N₃. Calculated, %: C 82.49; H 5.48; N 12.03. *M* 349.43.

6,6-Dimethyl-5,6-dihydrobenzo[*g*]naphtho[1',2':7,8]indolizino[2,3-*b*]quinoxaline (IV) was synthesized in a similar way from 2.77 g (10 mmol) of compound **II** [4]. Yield 71%, yellow crystals, mp 268–270°C. ¹H NMR spectrum, δ, ppm: 2.00 s (6H, CH₃), 3.60 s (2H, 6-H), 7.08 s (1H, 1-H), 7.16–8.66 m (12H, H_{arom}). Mass spectrum, *m/z* (*I*_{rel}, %): 399 (16) [*M*]⁺, 384 (8) [*M* – CH₃]⁺, 369 (20) [*M* – 2CH₃]⁺. Found, %: C 84.12; H 5.23; N 10.63. C₂₈H₂₁N₃. Calculated, %: C 84.18; H 5.30; N 10.52. *M* 339.49.

The ¹H NMR spectra were recorded on a Bruker-300 spectrometer (300 MHz) from solutions in CDCl₃ using HMDS as internal reference (δ 0.05 ppm). The mass spectra (electron impact, 70 eV) were obtained on a Finnigan MAT INCOS 50 instrument.

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