SYNTHESIS OF 1,3,6,8-TETRAAMINO-5,10-DIOXO-4,5,9,10-TETRAHYDRO-4,9-DIAZAPYRENE

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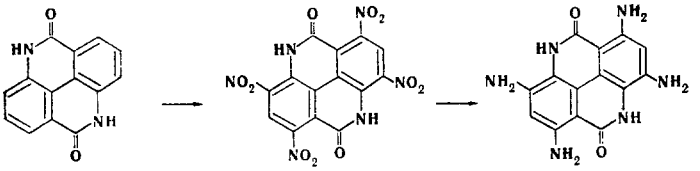
Veksler and Éfros [1] have expressed the assumption that a mixture of tri- and tetranitro-5,10-dioxo-4,5,9,10-tetrahydro-4,9-diazapyrenes is formed in the oxidative nitration of 5,10-dimethyl-4,9-diazapyrene.



I II III

We have shown that refluxing 5,10-dioxo-4,5,9,10-tetrahydro-4,9-diazapyrene (I) in nitric acid (sp. gr. 1.51) for 1 h or treatment with a nitrating mixture at 120° for 1 h gives yellow needles [from aqueous dimethylformamide (DMF)] of II with mp > 400° and R_f 0.5 [benzene–acetone (1:5) on Silufol plates]. IR spectrum (KBr): 3280, 1700 (CO), 1615, 1555 (NO_2), 1465, 1430, 1400, 1370, 1350, 1300 (NO_2), 1160, 1135, 1005, 890, 740, 710 cm^{-1}. UV spectrum (DMF), λ_{max}, nm (log ε): 306 (4.178), 370 (3.987), 490 (4.107).

Reduction of II with iron in aqueous ammonium chloride solution gives light-yellow crystals of 1,3,6,8-tetraamino-5,10-dioxo-4,5,9,10-tetrahydro-4,9-diazapyrene (III) with mp > 400° and R_f 0.55 [25% ammonium hydroxide–dioxane (1:3)]. IR spectrum (KBr): 3420–2800 (NH_2, NH), 1670 (CO), 1610, 1530, 1480, 1425, 1375, 1310, 1270, 845, 795, 760 cm^{-1}.

The tetraacetyl derivatives melt above 400°. The results of elementary analysis of the synthesized compounds for C, H, and N were in agreement with the calculated values.

LITERATURE CITED

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