

REACTION OF 3-NITRO- AND 3,5-DINITRO-DERIVATIVES OF 2-PYRIDONE WITH HYDRAZINE HYDRATE

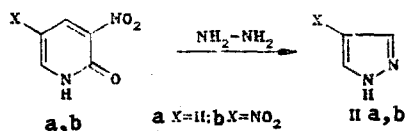
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Recyclization of 5-nitro-2-pyridone on heating it with hydrazine hydrate leads to the formation of a pyrazole derivative with the same number of carbon atoms as in the starting compound [1]. The methine C(3) atom of pyridone is thus reduced to methylene and together with the carbonyl C(2) atom is displaced to the side chain.

In the course of further investigations, it was shown that in contrast to the 5-nitro isomer, 3-nitro-2-pyridone (Ia) converts, on heating (90-95°C) with an excess of hydrazine hydrate (20 mmoles per mmole of Ia) for 7 h, into an unsubstituted pyrazole IIa in a yield of 74% (mp 69°C, according to [2], mp 69-70°C). As well as pyrazole, a carbodihydrazide was isolated from the reaction mixture (yield 75%, mp 154°C). These data show that the formation of pyrazole involves splitting of the C(2)-C(3)-C(4) bonds of pyridone.

Under similar conditions, 4-nitropyrazole (IIb) was obtained from 3,5-dinitro-2-pyridone (Ib) and hydrazine hydrate in a 87% yield (mp 162°C, according to the data in [3], mp 161°C).



Compounds IIa, b were identified with authentic samples by the absence of depression of the melting points of mixed samples and by their IR and PMR spectra.

LITERATURE CITED

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3. K. C. Chang, M. R. Grimmett, D. D. Ward, and R. T. Weavers, *Aust. J. Chem.*, 32, 1727 (1979).