REDUCTIVE REARRANGEMENT OF 5-AZACINNOLINE TO 4-AZAINDOLE

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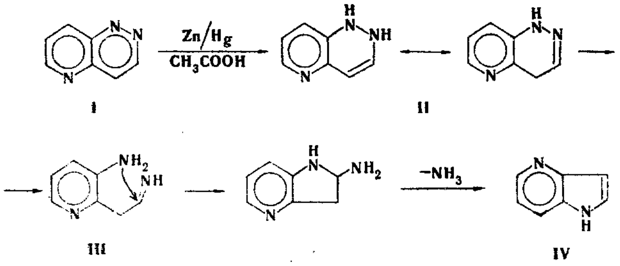
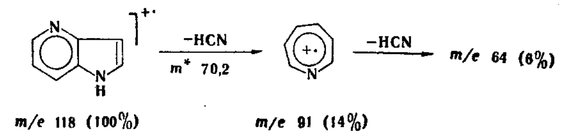
It is known that rearrangment to give indole occurs in the reduction of cinnoline with zinc amalgam in 30% acetic acid (for example, see [1]).



We have found that under similar conditions 5-azacinnoline (I) is converted to 4-azaindole (IV) in 20% yield. In analogy with the rearrangement of cinnoline, 5-azacinnoline I is probably reduced to dihydro structure II in the first step of the reaction, after which it is converted to intermediate III with cleavage of the N−N bond. The resulting compound undergoes cyclization and loses a molecule of ammonia to give 4-azaindole IV.

The physical constants of the 4-azaindole obtained (melting point and UV spectrum) were in agreement with the literature data [2]. In addition to the molecular ion, peaks of (M−HCN) and (M−2HCN) ions were observed in its mass spectrum, and this confirmed the azaindole structure.



LITERATURE CITED

1. J. M. Bruce, J. Chem. Soc., 2366 (1959).
2. L. N. Yakhontov, Usp. Khim., 37, 1258 (1968).

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