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THE ALKALINE DECOMPOSITION OF QUATERNARY FUSED HYDRAZINIUM IODIDES

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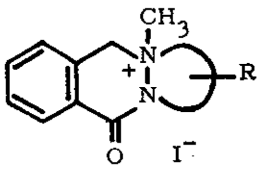
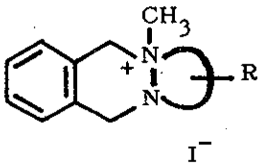
The alkaline decomposition of four groups of quaternary fused hydrazinium iodides (A - D) with CH_3ONa and with t-BuOK was examined.

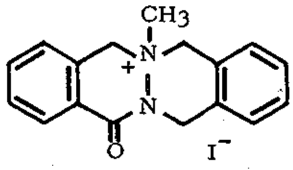
In groups A and C, the Stevens-type rearrangement which involves lactam nitrogen migration from nitrogen to carbon initiated by abstraction of α or α'-benzyl proton, occurred to form heterocycles containing isoindolone or isoindoline moieties. In groups B and D, three types of reactions described below were observed depending upon the variety of the starting materials and bases. These are Hofmann-type eliminations leading to medium sized diaza-heterocycles, e.g., 2-methyl-1,2,3,4,5,6-hexahydrobenzo[c][1,6]diazacyclodecine, initiated by abstraction of the β-benzyl proton, ring contraction to new quaternary salts, e.g., 5-methyl-1,2,3,4,6,10b-hexahydropyrimido[2,1-a]isoindolium iodide, initiated by N-N bond cleavage, and rearrangement to N-(ω-aminoalkyl)isoindole or 1-(2-methylaminomethylbenzyl)-pyrrole initiated by abstraction of α-benzyl or α-allyl protons. Mechanisms of these reactions were also discussed.



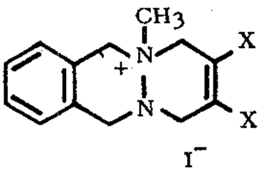
(A)



(B)



(C)



(D)