PHOTOCHEMICAL FORMATION AND TRANS-ANNULAR REACTIONS OF MEDIUM-SIZED NITROGEN HETEROCYCLES

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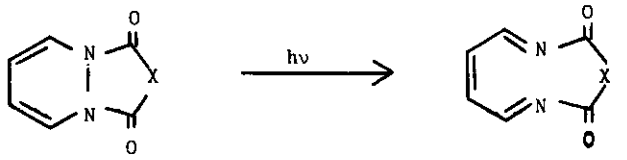
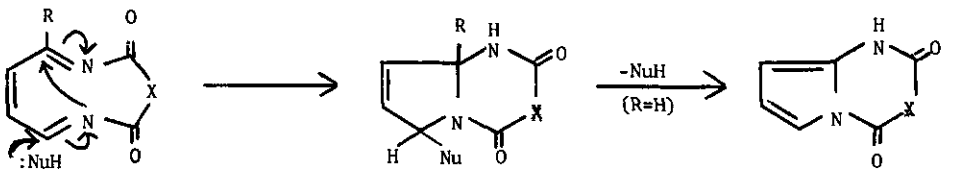
A synthetic approach to medium-sized nitrogen heterocycles, based on the photolytic ring opening of bicyclic dihydropyridazines (I → II) has been studied. Compounds (I) have been prepared via Diels-Alder reactions of cyclic azodicarbonyl compounds, followed by dehydrogenation. Their photolysis resulted in the formation of nine (X = N-Ph) or ten (X = CH=CH) membered rings (II).



I II

Properties and reactions of compounds II have been investigated and will be described. Particularly interesting are the trans-annular additions of nucleophiles (alcohols or amines) which lead to the bicyclic system III and subsequently, when possible, to IV.



III IV