HETEROCYCLES, Vol. 3, No. 12, 1975

REACTION OF N-ALKOXYQUINOLINIUM SALT WITH ENAMINE

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Attempted reaction of N-ethoxyquinolinium iodide with 1-morpholinocyclohexene was found to give not the expected 2-(2-quinolyl)cyclohexanone but instead an interesting product of a novel tricyclic system containing two quinoline rings and one enamine moiety(immonium iodide), 3-ethoxy-14-(2-quinolyl)-3-azabenzo[d]tricyclo[5,3,1,$1^{2,8}$]-dodecan-13-ylidenemorpholinium iodide.

Its stereochemistry was finally established by X-ray diffraction study as I, but interesting informations supporting its structure were obtained from its chemical reactions which involved thermolysis to 2,3'-biquinolyl, stereoselective addition to the azomethinium moiety by hydride and cyanide anions, alkaline hydrolysis to the corresponding 13-keto compound, pyrolytic elimination of ethoxy group as ethylene oxide from some derivatives and others. Spectral examinations of the product and its transformed compounds also agreed with their structures.

Other N-alkoxyquinolinium salts, i.e., N-ethoxyquinolinium bromide, perchlorate and tetrafluoroborate as well as N-methoxyquinolinium perchlorate similarly reacted with cyclohexanone enamines to afford the same type of products. However, N-alkoxyquaternary salts of pyridine, quinaldine and lepidine resisted this type of reaction, no mono-substituted product being obtained. Besides enamines of cyclohexanone, those of diethyl ketone and cyclopentanone also reacted with N-alkoxyquinolinium salts in the same way, but only de-ethoxylation took place with 1-morpholinoisobutene.

The reaction mechanism was discussed.

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