REISSERT COMPOUND STUDIES. XXVIII

A NOVEL CYANOHYDRIN FORMATION

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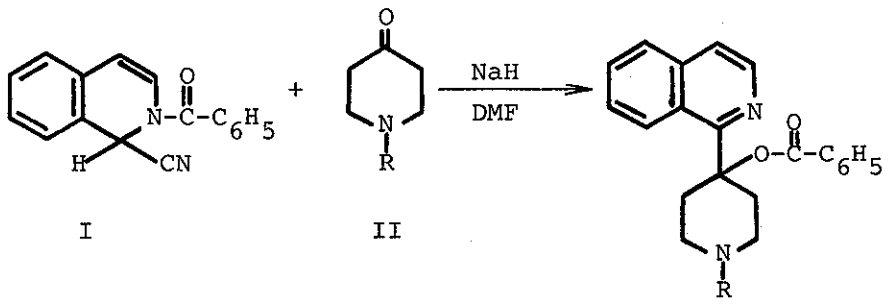
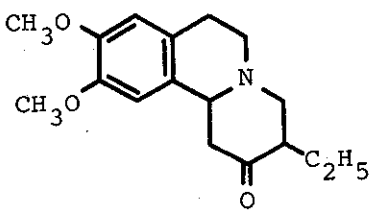
Reaction of the anion of 1-benzoyl-1,2-dihydroisoquinaldonitrile with 3-ethyl-1,3,4,6,7,11b-hexahydro-9,10-dimethoxybenzo(a)quinolizin-2-one gives the ketone cyanohydrin.

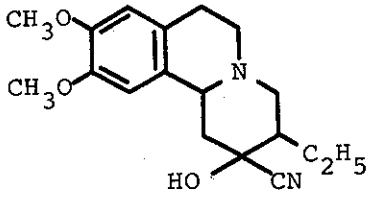
The reaction of the Reissert anion with aldehydes to give esters is well known.[1] Recently we reported that the anion of 1-benzoyl-1,2-dihydroisoquinaldonitrile (I) reacted with 4-piperidones (II) to also give esters (III).[2] Surprisingly, when this reaction was carried out with 3-ethyl-1,3,4,6,7,11b-hexahydro-9,10-dimethoxybenzo(a)quinolizin-2-one (IV) in place of II the expected ester was not obtained.



I II III



IV



V

Reaction of 0.012 mole of I with 0.010 mole of IV in dimethylformamide with 0.0125 mole of 50% sodium hydride in oil for one hour at room temperature gave a small amount of recovered IV, 1-benzoylisoquinoline, and instead of the ester a 40% yield of the cyanohydrin V,[3] m.p. 118-120° (IR (KBr): 2940, 2235, 1610 $cm.^{-1}$; NMR (DMSO): 6.25 (2ArH), 6.1 (OH), 3.3 (2 O-CH_3), 3.0 (2), 2.8 - 1.0 (10) 0.6 (C-CH_3) δ; Mass Spect.: 316 (M^+), 289, 288 (100%), 260, 246, 191 m/e). In a similar manner 1,3,4,6,7,11b-hexahydro-9,10-dimethoxy-3-methyl-benzo(a)quinolizin-2-one also gave a cyanohydrin[3], m.p. 140-143°.

It would appear that the ketone IV was not sufficiently reactive to react with the anion of I and that this anion rearranged[1] to 1-benzoylisoquinoline with the liberation of cyanide ion. In support of this we have found that IV and sodium cyanide react with sodium hydride-dimethylformamide to form V.

REFERENCES

1. F. D. Popp, Adv. Heterocyclic Chem., 1968, 9, 1.

2. F. D. Popp and R. F. Watts, J. Heterocyclic Chem., 1976, 13, 1129.

3. These compounds gave correct C, H, and N analyses.

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