

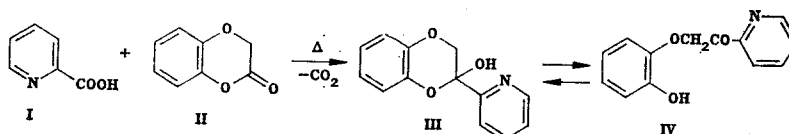
1,4-BENZODIOXIN-2[3H]-ONE IN THE HAMMICK REACTION

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The decarboxylation of picolinic acid (I) in the presence of aldehydes and ketones affords 2-pyridylcarbinols (the Hammick reaction) [1], and in the presence of cyclic anhydrides of aromatic dicarboxylic acids 2-pyridylcarbonylarylcarboxylic acids are obtained [2].

We here describe a modification of this reaction, using for the first time a lactone (II) as the carbonyl component:



The crystalline product isolated was 2-(2-hydroxy-2,3-dihydro-1,4-benzodioxin-2-yl)pyridine (III), which was shown to exist in solution in the equilibrium (III) \rightleftharpoons (IV). Its structure was established by its elemental analysis and its PMR and IR spectra.

A mixture of 0.1 mole of the acid (I) and 0.2 mole of the lactone (II) in 50 ml of p-cymene was boiled until carbon dioxide was no longer evolved (~ 3 h). The solution was cooled, diluted with 100 ml of ether, and washed with water (3×100 ml). The compound was extracted with dilute hydrochloric acid (3%, 4×50 ml). The ether solution was dried over CaCl_2 and distilled to regenerate the solvent and unreacted lactone (II). The acidic aqueous solution was basified with potassium carbonate, the solid filtered off, washed with water, and dried to give 7.35 g (51%, calculated on lactone reacted), mp $85-86.5^\circ\text{C}$ (from benzene).

LITERATURE CITED

1. K. V. Vatsuro and G. L. Mishchenko, Named Reactions in Organic Chemistry [in Russian], Khimiya, Moscow (1976), p. 461.
2. G. A. Karlivan and R. E. Valter, Khim. Geterotsikl. Soedin., No. 9, 1231 (1984).