with a substituent in the benzene ring were obtained by condensation of furyl-substituted glyoxals, glyoxylic acids, and their derivatives with substituted o-phenylenediamines; the conditions for the primary formation of one of the isomers were found. It is shown that the character of the substituent in the o-phenylenediamine, the nature of the α-dicarbonyl component, and the pH of the medium affect the direction of the reaction. It was established that, in addition to nitrofurylquinoxalines, 2-(5-iodo-2-furyl)quinoxaline has high antibacterial activity.

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STUDY OF THE SYNTHESIS OF PYRIDINE AND SOME OF ITS METHYL HOMOLOGS BY GAS-PHASE CATALYTIC CONDENSATION OF CARBONYL COMPOUNDS WITH AMMONIA

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An experimentally substantiated mechanism for the gas-phase condensation of carbonyl compounds with ammonia that makes it possible to predict the direction of reactions for the formation of pyridine bases from virtually any (with respect to structure) carbonyl compound and ammonia is proposed. It was established experimentally for the first time that the catalytic centers of the aldol condensation of carbonyl compounds and their Michael reaction, which precede the formation of the pyridine bases during their gas-phase synthesis, are the aprotic acid centers; the protic acid centers are the most active catalytic centers in the cyclization of the intermediates to alkylpyridines. Some side reactions that occur during the synthesis of pyridine and its homologs were revealed and investigated. Kinetic studies of the synthesis of pyridine and 3-methylpyridine by gas-phase condensation of acetaldehyde, formaldehyde, and ammonia on an industrial aluminosilicate catalyst were carried out. A fundamental technological scheme for the synthesis and isolation of pyridine and its homologs is recommended.

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