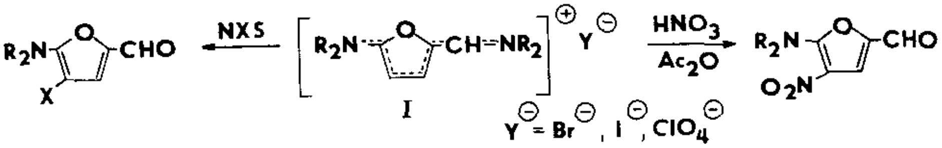
REACTIONS OF VINIMIDINIUM SALTS OF FURAN DERIVATIVES

J. Kováč[1], T. Gracza[1], Z. Arnold[2]

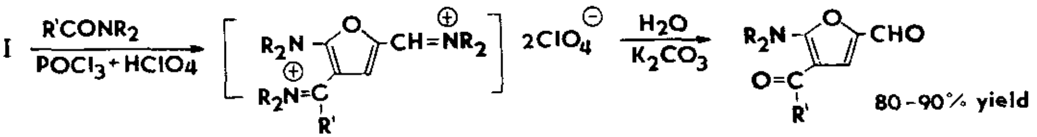
[1]Department Organic Chemistry Slovak Techn. University, Bratislava, Czechoslovakia

[2]Inst. Organic Chem. and Biochem. Czech. Akad. Sci. Prag

The reactions of vinamidinium salts were not studied in the heterocyclic series till now. The formation of 5-N,N-dialkylamino-2-furfurylidene-N,N-dialkylamonium salts /I/ with pentamethinium structure gives possibility to search these reactions on the furan's heterocyclic structure. These compounds have an increased electron density in the position 4 which gives the possibility to use them in electrophilic substitutions. New substituents enter in the β-position of furan nucleus and after hydrolysis of these vinamidinium salts with basic aqueous solution afford 4,5-disubstituted-2-furaldehydes. By this method 4-nitro- and 4-halogen-2-furaldehydes were prepared.



The acylation of vinamidinium salts proceeded with advantage by using reactive acylamides by catalytic action of $POCl_3$ and $HClO_4$.



The pentamethinium salts of 5-substituted-2-furaldehydes have the sufficient electron density in the β-position to react with the appropriate carbonyl compounds. The aromatic character of furan nucleus being restored after hydrolysis and the substituted β-hydroxymethylderivatives of furan were formed.