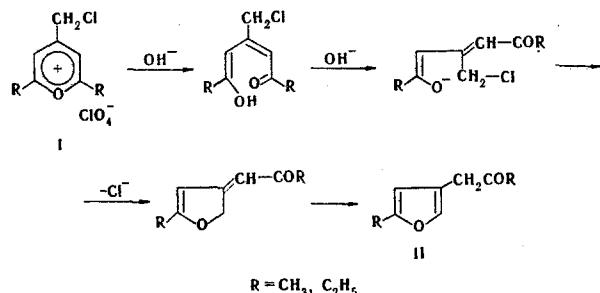


NEW METHOD FOR THE SYNTHESIS OF KETONES
OF THE FURAN SERIESV. I. Dulenko, N. N. Alekseev,
V. M. Golyak, and L. V. Dulenko

UDC 547.812'722

We have found that 5-alkyl-3-(acylmethyl)furan (II) are formed when 4-chloromethylpyrylium salts I are refluxed in dimethylformamide (DMF) for 4 h with a twofold quantity of 10% aqueous sodium hydroxide solution:



This method was used to obtain the following compounds: 1-(5-methyl-3-furyl)propan-2-one, with bp 88-89°C (4 mm), in 80% yield; 1-(5-ethyl-3-furyl)butan-2-one, with bp 92-93°C (4 mm), in 60% yield.

The results of elementary analysis are in agreement with the calculated values. Frequencies of the vibrations of a carbonyl group (1700 cm^{-1}) and a furan ring (1565, 1030, and 800 cm^{-1}) are observed in the IR spectra. The PMR spectrum (in CCl_4) of I ($R = \text{CH}_3$) contains singlets of furan ring protons at 5.8 and 7.1 ppm and of CH_3 (2.0 and 2.17 ppm) and CH_2 (3.27 ppm) groups.

The reaction evidently proceeds through opening of the pyran ring and intramolecular attack on the chloromethyl group by the enolate anion and subsequent isomerization of the resulting 5-alkyl-3-acylmethylene-2,3-dihydrofuran as a result of prototropic rearrangement to II.

We will use ketones II for the synthesis of furanopyrylium salts.