THE REACTION OF VINYLALKYL ETHERS WITH FURAN DERIVATIVES

V. G. Glukhovtsev and S. V. Sakharova

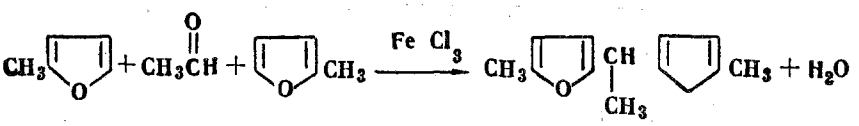
Khimiya Geterotsiklicheskikh Soedinenii, Vol. 2, No. 1, p. 151, 1966

The present authors have established that the reaction of vinylbutyl ethers (I) with 2-methylfuran (II) in the presence of $FeCl_3$ does not proceed by the substitution-addition reaction described in a previous paper [1]. Consider 2-(1-cyanopropoxyethyl) furan bp 79° (2 mm), n_D^{20} 1.4703, d_4^{20} 1.0637. Found: C 65.32, 65.50; H 6.58, 6.74%; MR 43.35. Calculated: C 65.43; H 6.71%. It is clear that the alkoxy group, found in the alpha position, is not exchanged in the reaction conditions of substitution-addition on the 2-methylfuryl radical, as previously supposed. In a solution of dialkylfuran in the presence of traces of water and $FeCl_3$ dibutylacetal is formed from I according to the reaction:

$$\underset{\text{I}}{CH_2=CHOC_4H_9} \longrightarrow \underset{\text{III}}{CH_3CHO} + C_4H_9OH$$

$$CH_2=CHOC_4H_9 + C_4H_9OH \longrightarrow CH_3CH(OC_4H_9)_2$$

The acetaldehyde III, formed under these conditions, condenses with two molecules of II according to the reaction:



30 g III was added with mixing to 21 g II and 0.25 ml $FeCl_3$ solution in butanol (1:8) over 3 hr. The reaction mixture was diluted with water, extracted with ether and neutralized with $NaHCO_3$. After distillation of the ether and 7 g II, the yield was 9 g (22%) 1, 1-di(5-methylfuryl) ethane, bp 118° (14 mm), n_D^{20} 1.4985. The literature gives [1]: bp 107° (11 mm), n_D^{20} 1.4990.

REFERENCE

1. M. F. Shostakovskii, A. V. Bogdanova, and A. N. Volkov, Izv. AN SSSR, OKhN, 2224, 1962.

14 August 1965

Zelinskii Institute of Organic Chemistry AS USSR, Moscow