CYCLIC SULFIDES AS HYDRIDE-ION DONORS IN AN IONIC REDUCTION REACTION

L. M. Petrova, A. A. Freger, and E. A. Viktorova

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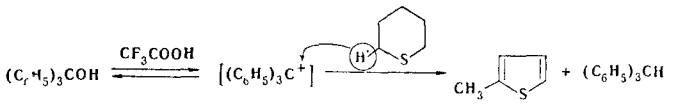
For the case of the ionic reduction of triphenyl carbinol we have obtained information on hydride mobility in some cyclic sulfides: thiacyclohexane, thiochroman, and 2-methyl-2,3-dihydrobenzothiophene. When the reaction was carried out for 7 h in acetonitrile at 70°C with a molar ratio of sulfide to triphenyl carbinol to trifluoroacetic acid of 1 : 1 : 3, dehydrogenation and isomerization of the cyclic sulfides was observed. In all cases, triphenylmethane – the reduction product of triphenyl carbinol – was found in the reaction products by thin-layer chromatography:



Of the sulfides studied, the greatest activity in the reduction of triphenyl carbinol was possessed by thiacyclohexane. The products of its transformation were found by thin-layer chromatography to contain 18% of 2-methylthiophene. Thiochroman underwent only 6% conversion, forming 2-methyl-2,3-dihydrobenzothiophene (2%) and 2- and 3-methylbenzothiophene (4%). 2-Methyl-2,3-dihydrobenzothiophene was 9% dehydrogenated.

The results of the present work in combination with those obtained previously [1], give grounds for considering that cyclic sulfides, like their oxygen analogs [2], are capable of taking part in the ionic dehydrogenation reaction and are hydride-ion donors in the ionic reduction reaction.

LITERATURE CITED

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