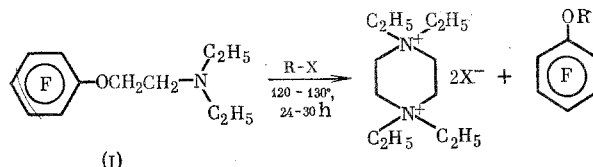


AN UNUSUAL TRANSFORMATION OF 2-PENTAFLUOROPHENOXYETHYL-N,N-DIETHYLAMINE  
WITH ALKYL BROMIDES AND ALKYL IODIDES TO FORM PIPERAZINIUM SALTS  
AND ALKYL PENTAFLUOROPHENYL ETHERS

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The reaction of tertiary amines with alkyl halides give quarternary ammonium salts [1]. In contrast, heating 2-(pentafluorophenoxy)ethyl-N,N-diethylamine (I) with decyl bromide (II), 2-(pentafluorophenoxy)ethyl bromide (III) or 2-(pentafluorophenoxy)ethyl iodide (IV) leads to an unusual transformation giving piperazinium dibromide (V) or diiodide (VI) along with the decyl ether of pentafluorophenol (VII) of the bispentafluorophenyl ether of ethyleneglycol (VIII)



R = CH<sub>2</sub>(CH<sub>2</sub>)<sub>8</sub>CH<sub>3</sub> (VII); CH<sub>2</sub>CH<sub>2</sub>OF<sub>5</sub>C<sub>6</sub> (VIII); X = Br (V), I (VI)

The reaction of 8 g (I) and 6.28 g bromide (II) gave 3.3 g (65%) salt (V), mp ~ 280°C (dec., from acetone) and 4.5 g (47%) ether (VII).

Analogously, 5 g (I) and 5 g bromide (III) gave 2.5 g (79%) salt (V) and 4.8 g (69%) ether (VII), while 6.5 g (I) and 7.48 g iodide (VI) gave 3.3 g (66%) salt (VI), mp ~ 280°C (dec.) and 5.7 g (63%) ether (VIII).

The PMR spectra of salts (V) (in CF<sub>3</sub>CO<sub>2</sub>D with HMS as the internal standard) and of (VI) (in water with HMS as the external standard) (δ, ppm, J, Hz): 1.11 t (CH<sub>3</sub>, J = 7), 1.48 g (CH<sub>3</sub>, J = 7), 3.50 q (CH<sub>2</sub>, J = 7), 3.78 q (CH<sub>2</sub>, J = 7), 3.76 s (CH<sub>2</sub>), 4.00 s (CH<sub>2</sub>).

The elemental analysis data of salts (V) and (VI) corresponded to the theoretical values. The properties of ethers (VII) and (VIII) corresponded to those of authentic samples.

#### LITERATURE CITED

1. K. V. Vatsuro and G. L. Mishchenko, Name Reactions in Organic Chemistry [in Russian], Izd. Khimiya, Moscow (1976), p. 278.

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