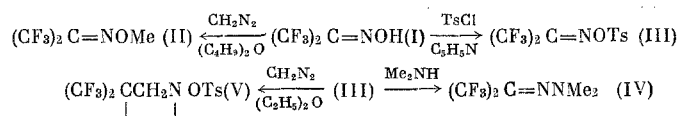


CONFIGURATIONAL STABILITY OF NITROGEN IN 1-TOSYLOXY-2,2-bis(TRIFLUOROMETHYL)AZIRIDINE

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A new class of thermally stable compounds with frozen inversion of the asymmetrical nitrogen, viz., $R-NCH_2C(CF_3)_2$ ($R = p-X-C_6H_4SO_3$), was found in the 2,2-bis(trifluoromethyl)aziridine series [1]. The NMR spectrum of the protons of the Y ring of the AB type with additional splitting in the ^{19}F nuclei does not change on heating to 190° in nitrobenzene. The introduction into R of suitable functional groups opens up the possibility for separation into enantiomers. Aziridines with other electronegative N-substituents ($R = MeO$ and Me_2N) cannot be obtained: II and III do not react with diazomethane because of weakening of the polarization of the $C=N$ bond due to the positive mesomeric effect of R



Compound I was obtained by the method in [2]. II was obtained in 37% yield and had bp $43-46^\circ$, n_D^{20} 1.2985, δ_{Me} 4.22 ppm (in CCl_4 with tetramethylsilane as the internal standard), and M^+ m/e 195 (66%). III was obtained in 85% yield and had mp $86-88^\circ$ (from heptane). IV was obtained in 48% yield and had bp 130° , n_D^{20} 1.3714, δ_{Me} 3.28 ppm, a multiplet (in CCl_4 relative to tetramethylsilane), and M^+ m/e 208 (75%). V was obtained in 25% yield and had mp $65-67^\circ$ [from heptane and sublimation at 60° (1 mm)], and M^+ m/e 349 (7.5%). PMR spectrum (in CCl_4 relative to tetramethylsilane): ring protons at δ_{H_A} 2.73 and δ_{H_B} 3.13 ppm, $J_{AB} = 5.2$, $J_{H_A CF_3} = 2.1$, $J_{H_B CF_3} = 0.75$ Hz, δ_{Me} 2.45 ppm, phenyl protons at 7.34 and 7.8 ppm, $J_{AB} = 8.5$ Hz; ^{19}F NMR (in CCl_4 with C_6F_6 as the internal standard): δ_{CF_3} -93.5 and -101.5 ppm, $J_{CF_3 CF_3} = 7.3$ Hz.

LITERATURE CITED

1. R. G. Kostyanovsky, I. I. Tchervin, A. A. Fomitchov, Z. E. Samojlova, C. N. Makarov, Yu. V. Zeifman, and B. L. Dyatkin, *Tetrahedron Letters*, 4021 (1969).
2. Yu. A. Cheburkov, N. S. Mirzabekyan, and I. L. Knunyants, USSR Author's Certificate No. 187027 (June 5, 1966); *Byull. Izobr.*, No. 20 (1966).

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