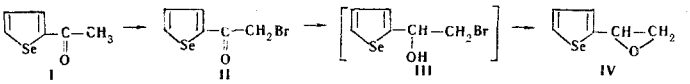
2-VINYLSELENOPHENE OXIDE

N. N. Magdesieva and T. A. Balashova

UDC 547.739.3.07

We have used the readily accessible ketones of the selenophene series for the synthesis of epoxyselenophenes. Similar derivatives of aromatic five-membered heterocycles have not been investigated to any extent [1,2]. We have obtained 2-vinylselenophenone oxide, starting from 2-acetoselenophene (I). The latter is readily brominated by dioxane dibromide to give the bromoketone (II), which on reduction with lithium aluminum hydride is converted into the bromohydrin (III). Subsequent cyclization of III with alcoholic alkali gives 2-vinylselenophene oxide (IV).



The structure of IV was confirmed by its NMR and IR spectra.

To a solution of 12.5 g of II in 110 ml of dry ether at 20° C a suspension of 1 g of lithium aluminum hydride in 50 ml of absolute ether was gradually added. The presence of the bromoketone was detected chromatographically (thin layer; on grade 2 alumina; mobile phase, chloroform). When all the bromoketone had reacted, the resulting complex was decomposed with 5 ml of water and the mixture was extracted with ether. The ether extract was dried over Na_2SO_4, and the solution was evaporated in vacuo to a volume of 170 ml, whereupon a solution of 2.8 g of KOH in 20 ml of methanol was added over 30 min at 0° C. The solution was washed with ice water until neutral, then dried over Na_2SO_4. Vacuum distillation gave 2.64 g of IV (30% calculated on starting II), bp 59° C (1 mm), n_D^{20} 1.5900. Found, %: C 41.61, 41.74; H 3.88, 3.79. Calculated, %: C 41.98; H 3.49.

LITERATURE CITED

1. K. Yu. Novtskii, A. F. Oleinik, and Yu. K. Yur'ev, ZhOKh, 33, 1043, 1963.
2. H. Hopf and R. Wandeler, Helv. Chim. Acta, 45, 982, 1962.

Lomonosov Moscow State University. Translated from Khimiya Geterotsiklicheskikh Soedinenii, Vol. 6, No. 5, p. 716, May, 1970. Original article submitted November 18, 1969.