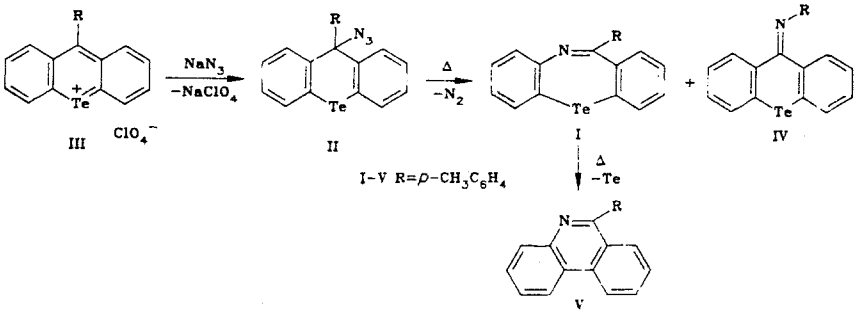
FIRST REPRESENTATIVE OF DIBENZO[b, f][1,4]TELLUROAZEPINES

A. A. Ladatko, I. D. Sadekov, and
V. I. Minkin

UDC 547.891.124.04

Unlike oxygen [1-4], sulfur [1-4], and selenium analogs [3, 4], derivatives of the seven-membered tellurium-containing heterocyclic system dibenzo[b,f][1,4]telluroazepine were not known previously.

We synthesized the first representative of telluroazepines, 11-(p-tolyl)dibenzo[b, f][1,4]telluroazepine (I), by thermal cyclization of 9-azido-9-(p-tolyl)telluroxanthene (II), obtained by treatment of 9-(p-tolyl)-10-telluroniaanthracene perchlorate (III) [5] with sodium azide in THF. Thermolysis of the azide during boiling of its xylene solution afforded not only telluroazepine I but also anil IV and some amount of phenanthridine V. The latter was probably formed by extrusion of the tellurium atom from heterocycle I, as occurred in the case of selenoazepines [3, 4]. The choice between structures I and IV was made on the basis of a study of the hydrolysis of these compounds, affording, in the case of anil IV, the previously described telluroxanthone [6].



Compounds I, IV, and V were isolated by column chromatography on aluminum oxide (eluents: benzene–hexane, 1:1; ethyl acetate–heptane, 1:1; ethyl acetate–hexane, 3:1).

9-Azido-9-(p-tolyl)telluroxanthene (II), light-yellow crystals, mp 128-129°C (decomposes), 64% yield. 11-(p-Tolyl)dibenzo[b,f][1,4] telluroazepine (I), red-brown crystals, mp. 221-223°C 21% yield. Anil IV, yellow crystals, mp 167°C, 32% yield, M^+ 397. Phenanthridine V, yellow crystals, mp 179-180°C, 20% yield.

LITERATURE CITED

1. R. H. Galt and A. D. B. Sloan, J. Chem. Soc., No. 4, 1588 (1958).
2. M. M. Coombs, J. Chem. Soc., No. 11, 4200 (1958).
3. J. P. Le Roux, P. L. Desbene, and M. Seguin, Tetrahedron Lett., No. 36, 3141 (1976).
4. P. L. Desbene and N. Jehanno, J. Heterocycl. Chem., 21, 1321 (1984).
5. I. D. Sadekov, A. A. Ladatko, E. I. Sadekova, G. N. Dorofeenko, and V. I. Minkin, Khim. Geterotsikl. Soedin., No. 3, 343 (1981).
6. I. D. Sadekov, A. A. Ladatko, and V. I. Minkin, Khim. Geterotsikl. Soedin., No. 10, 1342 (1980).

Scientific-Research Institute of Physical and Organic Chemistry, M. A. Suslov Rostov State University, Rostov-on-Don 344071. Translated from Khimiya Geterotsiklicheskikh Soedinenii, No. 2, p. 279, February, 1987. Original article submitted June 2, 1986.

 0009-3122/87/2302-0236$12.50