NEW APPROACH TO THE SYNTHESIS OF TELLURANTHRENE

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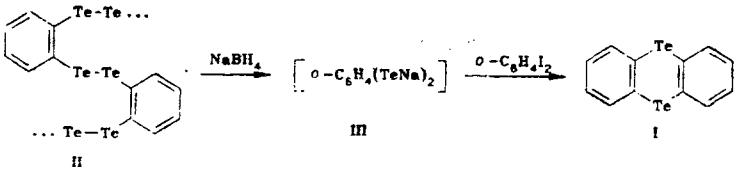
Until now, only one method for synthesizing telluranthrene (I) has been described. It is based on the reaction of o-phenylenemercury, which is relatively difficult to obtain, with powdered tellurium at 250°C [1]. As the starting material for preparing heterocycle I, we have used the known [2] poly(o-phenyleneditelluride) (II). In view of the high nucleophilicity of tellurolate anions [3], one would expect to obtain heterocycle I on the reaction of the disodium derivative of o-ditellurobenzene (III) with o-diiodobenzene. In fact, the ditellurolate anion, III, generated by the reduction of polytelluride II with sodium borohydride in DMFA [dimethylformamide], reacting with o-diiodobenzene, gives the expected heterocycle I in better than 60% yield.



II III I

On the reaction of 3.3 g (0.01 mole based on the monomer) of polyditelluride II in 50 ml of DMFA and 1.51 g (0.04 mole) of $NaBH_4$ in 20 ml of DMFA with the subsequent addition of 3.3 g (0.01 mole) of diiodobenzene in 10 ml of DMFA and heating of the reaction mixture to 110°C (1 h), 2.53 g (62%) of telluranthrene (I) are obtained. Yellow prisms with T_{mp} 167-168°C (from hexane)(from [1], T_{mp} 169-170°C).

LITERATURE CITED

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3. I. D. Sadekov, A. A. Maksimenko, and V. I. Minkin, Chemistry of Organotellurium Compounds [in Russian], RGU, Rostov-on-Don, 1983.

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