SYNTHESIS OF α,α'-DISUBSTITUTED DERIVATIVES OF SELENOPHENE

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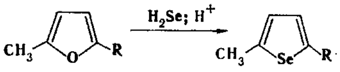
For the first time we have established the ability of compounds of the furan series to undergo conversion to the corresponding selenophenes under acid-catalysis conditions upon reaction with hydrogen selenide. α,α'-Disubstituted selenophenes VIII-XIV were obtained in high yields (40-60%) in the case of furan compounds I-VII.



I-VII VIII-XIV

I, VIII $R=CH_3$; II, IX $R=C_2H_5$; III, X $R=(CH_2)_2CH_3$; IV, XI $R=(CH_2)_3CH_3$; V, XII $R=(CH_2)_2CH_2OH$; VI, XIII $R=(CH_2)_2CH(OH)CH_3$; VII, XIV $R=(CH_2)_2C(CH_3)_2OH$

The reaction is carried out in methanol or ethanol in an inert gas atmosphere. Perchloric or hydrochloric acid or gaseous hydrogen chloride is used as the acidic component.

The following compounds were obtained [boiling points in degrees Celsius (pressure in millimeters), n_D^{20} values, and yields in percent given]*: VIII 87-88 (70), 1.5442, 54; IX 102-102.5 (70), 1.5318, 41; X 85-86 (15), 1.5297, 51; XI 100.5-101.5 (15), 1.5230, 62; XII 98-99 (1), 1.5550, 56; XIII 105-106 (1), 1.5425, 60; XIV 134-136 (7), –, 61.

The IR spectra of VIII-XIV contain a number of absorption bands at 800, 1040, 1240, 1380, 1450, and 1520 cm^{-1}, which are characteristic for the selenophene ring [2]. The results of elementary analysis of the substances obtained for their C and H content were in agreement with the calculated values.

LITERATURE CITED

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2. N. A. Chumaevskii, V. M. Tataevskii, and Yu. K. Yur'ev, Opt. Spektrosk., 6, 45 (1959).

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*The constants presented are in agreement with the literature data [1].

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