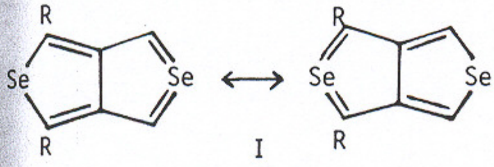
T1430C

NONCLASSICAL SELENOLOSELENOPHENES

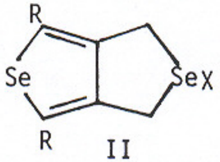
Salo Gronowitz and Andreas Konar

Division of Organic Chemistry 1, Chemical Center, University of Lund,
P.O. Box 740, S-220 07 Lund, Sweden.

We have recently[1] obtained evidence for the transient existence of the two derivatives Ib and Ic of the nonclassical selenolo[3,4-c]selenophene (Ia). These were formed as intermediates in both acid- and base-catalyzed dehydration of the corresponding selenoxides IIa and IIb, as well as in dehydrobromination of the dibromides IId and IIe.



I



II

a. R = H	a. X = O; R = Me	d. X = Br_2; R = Me
b. R = Me	b. X = O; R = CO_2Et	e. X = Br_2; R = CO_2Et
c. R = CO_2Et	c. X = O; R = Ph	f. X = Br_2; R = Ph
d. R = Ph		

In order to stabilize the nonclassical system I, we introduced phenyl substituents in positions 1 and 3 (cf. Id, IIc and IIf), and then also in positions 1, 3, 4 and 6 via ring-closure reactions of suitable 1,4-diketones with phosphorus pentaselenide. Phosphorus pentaselenide was prepared by a slight modification of the method of Zingaro et al.[2] in which red, amorphous selenium was used instead of the grey form. This rendered the reagent sufficiently reactive towards 1,4-diketones to effect their cyclization in moderate yields, for which reason the reaction can now be considered as a more general route to 2,5-disubstituted selenophenes than previously realized. Cycloaddition reactions of nonclassical selenoloselenophenes and thienoselenophenes will be discussed.

References:

1. S. Gronowitz and A. Konar, J. Chem. Soc. Chem. Commun. 1977, 163.
2. M.V. Kudchadker, R.A. Zingaro and K.J. Irgolic, Can. J. Chem. 1968, 46, 1415.