A Selenonium Ylid

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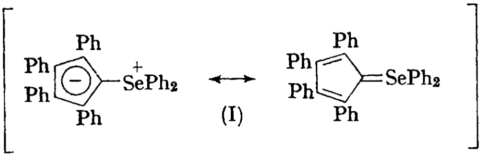
APPARENTLY the only reported attempt to form a selenonium ylid was by the reaction of a 9-fluorenyldimethylselenonium salt with alkali, but the reaction product was a black precipitate (an unlikely colour for the pure selenonium ylid) which was very unstable and gave off methyl selenide rapidly, even at room temperature.[1]

When diazotetraphenylcyclopentadiene was heated to 140° in phenyl selenide under nitrogen for 10 min. and the resultant green solution cooled and diluted with ether and light petroleum, diphenylselenonium tetraphenylcyclopentadienylide (I) was precipitated as yellow crystals (93%), m.p. 188—190° (decomp.) (from cyclohexane). (Found: C, 82·4; H, 5·1. $C_{41}H_{30}Se$ requires C, 81·9; H, 5·0%)

The infrared spectrum of (I) is very closely similar to that of its sulphonium analogue;[2] the ultraviolet spectrum [λ 302 mμ (ϵ 19,200)] shows a small bathochromic shift compared to that of the sulphonium compound.

The ylid (I) is stable in air in the absence of light; on exposure to light there is a darkening of the crystal surfaces. Solutions very slowly decompose on standing or heating. Like the corresponding sulphonium ylid but unlike the analogous ylids having Group V hetero-atoms,[3] (I) is only very weakly basic and is insoluble in hydrochloric acid.

After being heated with *p*-nitrobenzaldehyde in chloroform for 12 hours both the selenonium and sulphonium ylides are recovered essentially quantitatively.



(I)

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[1] E. D. Hughes and K. I. Kuriyan, *J. Chem. Soc.*, 1935, 1609.

[2] D. Lloyd and M. I. C. Singer, *Chem. and Ind.*, 1967, 118.

[3] D. Lloyd, M. I. C. Singer, M. Regitz, and A. Liedhegener, *Chem. and Ind.*, 1967, 324; D. Lloyd and M. I. C. Singer, *ibid.*, in the press.