Stable Quinonoid Derivatives of Isobenzofuran and Isoindole

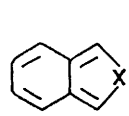
By ROBIN G. F. GILES* and GREGORY H. P. ROOS
(*Department of Organic Chemistry, University of Cape Town, South Africa*)

Summary The syntheses of quinonoid derivatives of isobenzofuran and isoindole, *via* the quinones (**6**) and (**12**), are described.

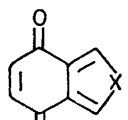
RECENT reports of the isolation of the highly reactive species isobenzofuran (**1**)[1] and isoindole (**2**)[2] prompted us to investigate routes to their quinonoid derivatives (**3**) and (**4**) respectively. The latter species are likely to be stabilised with respect to their parent systems through resonance.

AgO oxidation[3] of the adduct (**5**)[4] between 3,6-dimethoxybenzyne and furan gave the oxygen-bridged quinone (**6**).† This, on treatment with 3,6-di-(2-pyridyl)-*s*-tetrazine[1] in $CHCl_3$ solution gave the required furan (**3**).†[5]

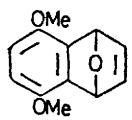
Reaction between *N*-ethoxycarbonylpyrrole and 3,6-dimethoxybenzyne gave the adduct (**7**).† This afforded the amine (**8**)† on basic hydrolysis, or the *N*-methyl analogue (**9**)† on treatment with $LiAlH_4$ in ether. The adduct (**7**) underwent AgO oxidation to the quinone (**10**), but this did not react with the tetrazine. Attempted AgO oxidation of either of the bases (**8**) or (**9**) led to extensive decomposition. However, AgO oxidation of the *N*-acetyl derivative (**11**),† obtained from the amine (**8**) with acetic anhydride and pyridine, gave the quinone (**12**). This reacted with 3,6-di-(2-pyridyl)-*s*-tetrazine giving rise, after chromatography, to the isoindole (**4**).†



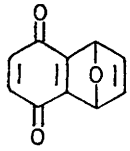
(1) X = O
(2) X = NH



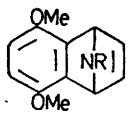
(3) X = O
(4) X = NH



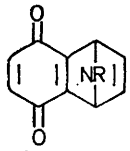
(5)



(6)



(7) R = CO_2Et
(8) R = H
(9) R = Me
(11) R = COMe



(10) R = CO_2Et
(12) R = COMe

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† These new compounds gave satisfactory elemental analyses and their spectroscopic data were in accord with the assigned structures.

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[2] G. M. Priestley and R. N. Warrener, *Tetrahedron Letters*, 1972, 4295; R. Bonnett, R. F. C. Brown, and R. G. Smith, *J.C.S. Perkin I*, 1973, 1432.
[3] C. D. Snyder and H. Rapoport, *J. Amer. Chem. Soc.*, 1972, **94**, 227.
[4] C. W. Rees and D. E. West, *J. Chem. Soc.* (*C*), 1970, 583.
[5] The u.v., i.r., and n.m.r. data only for this compound have been reported: S. E. Fumagalli and C. H. Eugster, *Helv. Chim. Acta*, 1971, **54**, 959.