

(A_2B_2 , $J_{HH}=8.4$ Hz, 4H, C_6H_4); MS: m/e 282 (M^+ , 3.7%) and 139 (ClC_6H_4CO , 100).

Found: C, 55.44; H, 3.73; Cl, 12.68%. Calcd for $C_{13}H_{11}O_5Cl$: C, 55.24; H, 3.92; Cl, 12.54%.

6: mp 203–205 °C (dec) (from acetone); IR (KBr): 1760 (sh) and 1740, 1660, and 1610 cm^{-1} ; NMR ($CDCl_3$): δ 3.53 (s, 3H, Me), 3.87 (s, 3H, Me), 3.98 (s, 3H, Me), 6.50 (bs, 1H, CH), and 6.85–7.50 (m, 8H, $2C_6H_4$); MS: m/e 532 (M^+ , 0.05%) and 139 (ClC_6H_4CO , 100).

Found: C, 56.52; H, 3.10; Cl, 13.54%. Calcd for $C_{25}H_{18}O_5Cl_2$: C, 56.30; H, 3.40; Cl, 13.30%.

b) In the presence of water: To a mixture of 1.52 g (13.5 mmol) of **1** and 0.5 ml (27.8 mmol) of water in 30 ml of ether was added 2.11 g (27.8 mmol) of **2** in 20 ml of ether over 1.5 h at room temperature under nitrogen. Similar treatment afforded 1.17 g (56%) of **4** and 1.17 g (65%) of triethylphosphine oxide.

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References

- 1) L. Horner and H. Hoffmann, *Angew. Chem.*, **68**, 473 (1956); M. A. Shaw, J. C. Tebby, R. S. Ward, and D. H. Williams, *J. Chem. Soc. (C)*, **1967**, 2442; N. E. Waite, J. C. Tebby, R. S. Ward, and D. H. Williams, *ibid.*, **1969**, 1100; N. E. Waite, J. C. Tebby, R. S. Ward, M. A. Shaw, and D. H. Williams, *ibid.*, **1971**, 1620.
- 2) E. Winterfeldt and H. -J. Dillinger, *Chem. Ber.*, **99**, 1558 (1966).
- 3) F. Korte, K. H. Büchel, and K. Göhring, *Angew. Chem.*, **71**, 523 (1959).
- 4) S. Sugden and H. Whittaker, *J. Chem. Soc.*, **127**, 1873 (1925).