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OXIDATION OF 2,3-DICHLORO-5,6-DICYANOHYDROQUINONE TO 2,3-DICHLORO-5,6-DICYANOBENZOQUINONE

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7.3-7.6 (3H, complex); 8.00 (1H, dd, J = 8 and 1.5 Hz); 8.10 (1H, dd, J = 9 and 1.5 Hz); 9.84 (1 H, s); 11.64 (1H, s).

REFERENCES

1. R. Adams, T. A. Geissman and J. D. Edwards, *Chem. Rev.*, **60**, 555 (1960); R. D. Stipanovic, A. A. Bell and M. J. Lukefahr, "Chemical Basis for Host Plant Resistance to Pests", pp. 197-214. P. A. Hedin, Ed., ACS Symposium Series 62, American Chemical Society, Washington, D. C., 1977; A. Manmade, P. Herlihy, J. Quick, R. P. Duffley, M. Burgos and A. P. Hoffer, *Experientia*, **39**, 1276 (1983).
2. D. Berry and D. C. C. Smith, *J. Chem. Soc. Perkin I*, 699 (1972).
3. A. J. Birch, M. Salahud-Din and D. C. C. Smith, *J. Chem. Soc. (C)*, 523 (1966).

OXIDATION OF 2,3-DICHLORO-5,6-DICYANOHYDROQUINONE TO 2,3-DICHLORO-5,6-DICYANOBENZOQUINONE

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2,3-Dichloro-5,6-dicyanobenzoquinone (DDQ) has been widely used in dehydrogenation experiments. The oxidation of the resulting 2,3-dichloro-

5,6-dicyanohydroquinone (DDQH₂) has been described^{1,2} and is most conveniently carried out as described below. This new procedure uses dilute nitric acid and foaming is not a problem.

EXPERIMENTAL SECTION

To a cold and stirred suspension of 186 g of DDQH₂ (which was obtained by combining the DDQH₂ recovered from many different reactions involving DDQ) in 370 ml of water was added dropwise during 10-15 min 370 ml of concentrated nitric acid while the temperature was being maintained at 20-25°. After 30 min stirring at 20-25°, the solid was collected and washed well with water and a little pentane. There was obtained 163.5 g (88%) of DDQ, mp. 210-212°, suitable for further reactions.

REFERENCES

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1. J. W. Scott, D. R. Parrish, and F. T. Bizarro, *Org. Prep. Proced. Int.*, **9**, 91 (1977).
 2. D. Walker and T. D. Waugh, *J. Org. Chem.*, **30**, 3240 (1965) prepared DDQ from dicyanobenzoquinone using conc. hydrochloric acid and conc. nitric acid.