

ABSTRACT

The phenazine antibiotic pyocyanine was isolated from cultures of *Pseudomonas aeruginosa* growing in liquid culture. Laboratory tests were carried out with agar media containing pyocyanine and phenazine methosulphate (PMS) on *Pythium ultimum*, *Fusarium solani* and *Sclerotium rolfsii*. All of the fungi were inhibited by concentrations of over $250 \mu\text{g.cm}^{-3}$ pyocyanine and PMS, with the exception of *P. ultimum*, which exhibited a build-up of tolerance towards the chemicals over time. Sclerotia production was significantly decreased with concentrations over $100 \mu\text{g.cm}^{-3}$ pyocyanine and PMS. Sclerotial germination studies and greenhouse studies were carried out on *S. rolfsii* with PMS only. Germination of laboratory-grown sclerotia was inhibited by $300 \mu\text{g.cm}^{-3}$ PMS incorporated into agar. Soaking sclerotia in solutions containing 100, 500 and 5000 $\mu\text{g.cm}^{-3}$ PMS also reduced the percentage germination but was dependent on the age and the duration of soaking. A wetting agent enhanced the effect of PMS. Soaking in a solution containing 5000 $\mu\text{g.cm}^{-3}$ PMS reduced germinability of soil-grown sclerotia to 5.2% and 13.2% with and without a wetting agent respectively. Benlate and Dithane M45 at 5000 $\mu\text{g.cm}^{-3}$ did not significantly reduce germinability. 1000 $\mu\text{g.cm}^{-3}$ PMS had a prophylactic effect on 5-8-week old tomato plants artificially inoculated with *S. rolfsii* but was not effective in reducing damping-off due to *S. rolfsii* in tomato seed beds.