

Detection of Resistance to Sterol Demethylation-Inhibiting (DMI) Fungicides in *Cercospora beticola* and Efficacy of Control of Resistant and Sensitive Strains with Flutriafol

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Single-lesion isolates of *Cercospora beticola* (n=150) were collected in 1998 from sugar beet fields in the area of Serres, N. Greece. In this area, sterol demethylation-inhibiting (DMI) fungicides have been used for almost 20 years to control sugar beet leaf spot. The sensitivity of these isolates to the DMI fungicides flutriafol and difenoconazole (EC₅₀ values) was determined on the basis of inhibition of mycelial growth at several fungicide concentrations. The relative growth (RG) of isolates was correlated at all tested concentrations with the respective EC₅₀ values, indicating that RG provides a reliable estimate for the sensitivity of the isolates. The highest correlation coefficients were obtained for concentrations of 1 µg ml⁻¹ flutriafol and of 0.05 µg ml⁻¹ difenoconazole, respectively. Consequently, they are proposed for monitoring of DMI sensitivity in *C. beticola* populations, as single discriminatory concentrations in a simplified test method. Based on the RG values at the discriminatory concentration of 1 µg ml⁻¹ flutriafol, *C. beticola* isolates were classified as either resistant or sensitive. The efficacy of flutriafol, applied at the commercially recommended dose, in controlling *Cercospora* leaf spot was examined in field experiments conducted during 1999 and 2000. Disease incidence in plots artificially inoculated with resistant isolates and treated with flutriafol was significantly higher than in similar plots inoculated with sensitive strains. These results suggest that poor disease control after application of flutriafol may be based on the presence of resistant strains within the pathogen population in northern Greece. This emphasizes the risk of the development of practical resistance if there is increased frequency of such strains within the population.

KEY WORDS: Fungicide resistance; sterol demethylation inhibitors; sugar beet; *Cercospora* leaf spot.

Received Aug. 14, 2002; received in final form March 9, 2003; <http://www.phytoparasitica.org> posting July 13, 2003.

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