

Strobilurin Sensitivity of *Zymoseptoria tritici* Italian Strains

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ABSTRACT

Mycosphaerella graminicola (anamorph: *Zymoseptoria tritici*) is the causal agent of leaf blotch, the most important foliar disease of wheat in Northwestern and Central Europe. In Italy, only during the last few years, the incidence of the disease has increased. The most common strategy for leaf blotch control is the use of fungicides, in particular QoIs, DMIs, and of the more recently introduced SDHIs. Widespread QoI resistance and sensitivity changes towards DMIs are already common in main wheat growing areas of Northwestern Europe while in Italy only limited results from specific sensitivity monitoring programs are available. The aim of this study was to test the sensitivity of *Z. tritici* strains to QoI fungicides in order to obtain more data about the situation in Italy. Leaves of durum wheat were collected during 2015 from 9 fields and different fungicide use pattern located in the North of Italy (samples from untreated control, experimental stations, and commercial sites). The sensitivity of 44 isolates to azoxystrobin was determined *in vitro* by a microtitre assay. On the basis of these results, we observe a slight decrease in the sensitivity of *Z. tritici* towards QoI fungicides in Northern Italy.

INTRODUCTION

Septoria leaf blotch (STB), caused by *Mycosphaerella graminicola* (anamorph: *Z. tritici*), is the most important disease of wheat and is particularly widespread on bread wheat in Northwestern and Central Europe. During the last few years, the incidence of the disease has increased also in Italy on durum wheat which is the most widely cultivated (1.080.837 ha of durum wheat, 601.177 ha of bread wheat). Resistant cultivars, cultural management, and chemical control are the most common disease control strategies. The main fungicides used are QoIs, DMIs, and, more recently, SDHIs. The use of fungicides with a specific biochemical mode of action led to the emergence of strains adapted to QoIs and DMIs in many wheat growing areas of the world. In Italy, today only few results from specific sensitivity monitoring programs are available. Therefore, the aim of this study was to test the QoI sensitivity of *Z. tritici* strains in order to obtain more data from Italian field samples.

MATERIAL AND METHODS

Leaves of durum wheat were collected during 2015 from 9 fields in Emilia Romagna region (North of Italy) and different fungicide use pattern (samples from untreated control, experimental stations, and commercial farms). The sensitivity of 44 isolates to azoxystrobin at different concentrations (0-0.001-0.003-0.01-0.03-0.1-0.3-1-3-10-30 mg/l of active ingredient) was determined *in vitro* by a microtitre assay (Stammler & Semar 2011).

RESULTS AND CONCLUSION

The EC₅₀ values of strains isolated from untreated controls ranged from 0.02 to 2.8 mg/l azoxystrobin, while the isolates collected from experimental plots and commercial fields showed EC₅₀ from 0.02 to 4.7 mg/l (Graphic 1). On the basis of these results, we observed the presence of few *Z. tritici* showing a slight decreased QoI sensitivity in Northern Italian fields according to Gisi et al. (2005), who reported for sensitive isolates EC₅₀ <3 mg/l. The three strains with the highest EC₅₀ values were collected from experimental plots.

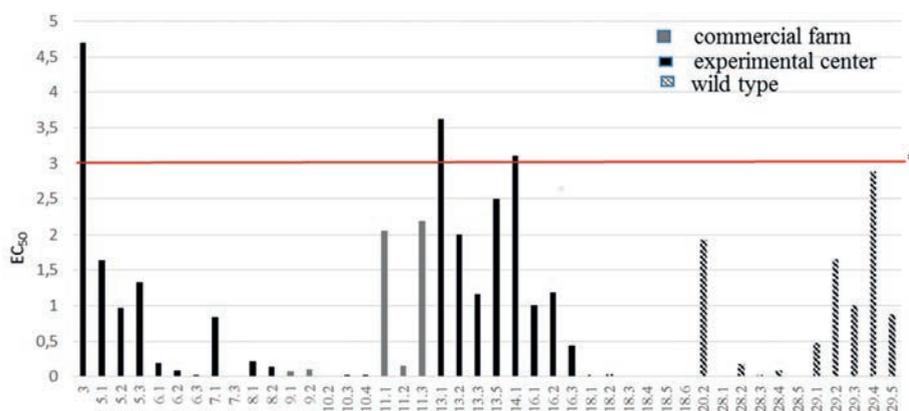


Figure 1 Results of sensitivity test to azoxystrobin carried out on isolates of *Zymoseptoria tritici* collected during 2015. *EC₅₀ value that divided sensitive from resistant isolates (Gisi et al. 2005)

REFERENCES

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