

Survey of *Sclerotinia homoeocarpa* Isolates in Indiana for Sensitivity to Three Fungicides

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Objective

To investigate the sensitivity of isolates of *Sclerotinia homoeocarpa* to fungicides used for dollar spot control in Indiana.

Rationale

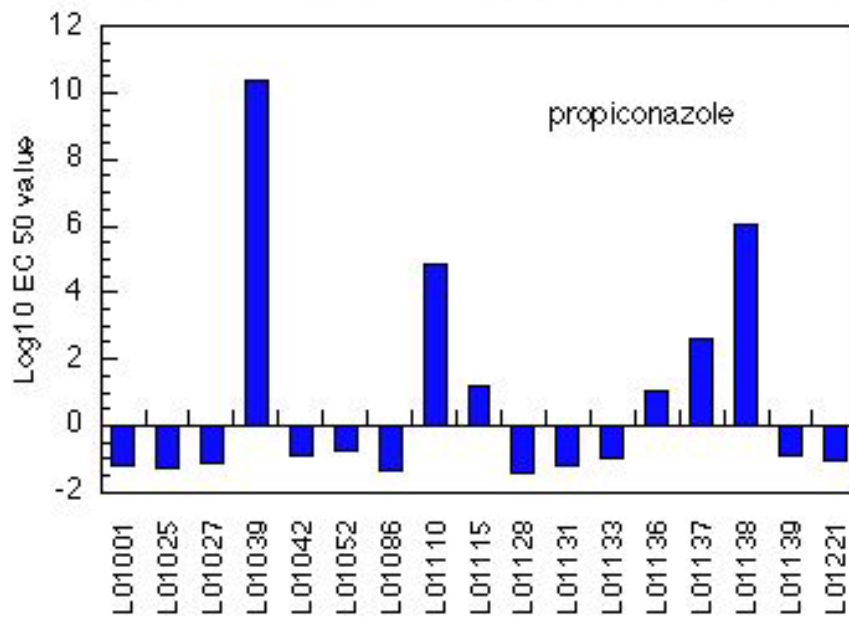
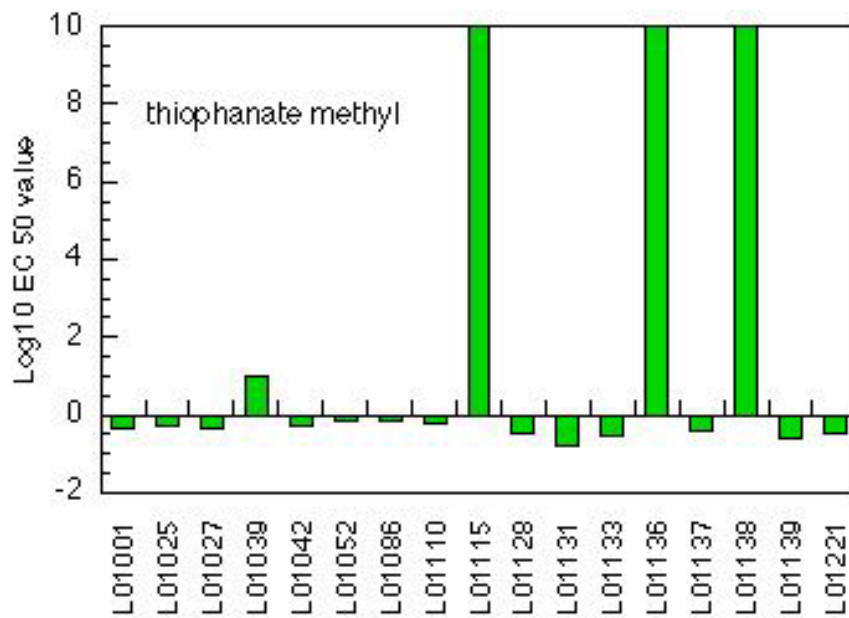
Dollar spot, caused by *S. homoeocarpa*, is a common disease of creeping bentgrass throughout the midwestern United States. Acceptable control of dollar spot on golf turf is unlikely without repeated use of fungicides. Systemic and local systemic fungicides are an integral component of dollar spot management, but a noticeable decline in performance of a few of these fungicides has occurred at some golf courses. Marginal performance may be due to various factors, including the development of fungicide-insensitive strains of the pathogen. This research is part of a continuing effort to characterize the sensitivity of Indiana populations of *S. homoeocarpa* to iprodione, propiconazole, and thiophanate-methyl. This information will help golf course supervisors use fungicides more efficiently, and it will improve our knowledge about the extent of fungicide insensitivity.

How It Was Done

Dollar spot samples were collected from different golf courses throughout Indiana during the summer of 2001. The pathogen was isolated from each of these samples and stored on filter paper for later use. Seventeen of these isolates were evaluated for sensitivity to iprodione, propiconazole, and thiophanate-methyl. These isolates were brought out of storage and grown on potato dextrose agar (PDA). A 5 mm plug of PDA from each of the seventeen isolates was transferred to one Petri dish of fungicide-amended PDA per dilution. For each of the three fungicides, PDA was amended with seven dilutions of fungicide and poured into Petri dishes. A control, consisting of PDA with no fungicide, was used for each isolate. For each experiment, there were eight Petri dishes per isolate: seven dishes amended with different dilutions of fungicide and one control dish. Colony diameters were measured 4 days after transfer. The experiment was repeated once for each fungicide. Sensitivity to fungicide was expressed in terms of 50% effective concentration (EC₅₀) values (the concentration of fungicide that restricted growth to 50% of the control).

Results to date

Significant differences in EC₅₀ values were observed among isolates for each fungicide. Results for the thiophanate-methyl and propiconazole assays are presented in Figure 1. Six of the isolates assayed against propiconazole appeared to be insensitive to the fungicide, with varying levels of insensitivity among those isolates. Four isolates evaluated against thiophanate-methyl were found to be insensitive (resistant). Of those four isolates, three were extremely insensitive to the fungicide. Preliminary results of the iprodione assay suggest that insensitivity is present in some isolates. Isolates that were insensitive to fungicides in the assays corresponded to those golf courses where fungicide performance appeared to decline.



Isolate identification

These charts describe the sensitivity of 17 isolates of *S. homocarpus* (dollar spot pathogen) to two fungicides, thiophanate-methyl (green) and propiconazole (blue). The isolates are identified by numbers assigned to each golf course. The golf course code and an interpretation of the charts is included in the attached letter.