RHIZOCTONIA SEEDLING DAMPING-OFF IN SUGAR BEET IN MICHIGAN

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Rhizoctonia solani is an important seedling pathogen of sugar beet, causing damping-off following seedling emergence. Anastomosis group (AG)-4 has been the primary seedling pathogen reported on sugar beet, however, recent screening has found high incidence of infection by AG-2-2. Isolations of *R. solani* were made from seedlings with symptoms in Michigan over a three-year period. Pure cultures were obtained after hyphal tip transfer. AG determination was done via paired isolate testing and molecular methods. For paired isolate testing, sterile glass slides were coated with water agar and tester isolates for AG-4 and AG-2-2 were placed on separate slides. Isolates to be identified were placed approximately 2 cm away from the tester isolates. Slides were incubated in a moist chamber and examined for growth every 1-2 days. When the two isolates grew into the same area, slides were examined under the microscope for hyphal anastomosis. For molecular identification, isolates were grown in liquid static culture and DNA was extracted. PCR was performed with general ITS primers for fungi (White et al. 1990) and with specific primers for AG-2-2 (Carling et al. 2002). Intraspecific group was determined by growth at 28 C and 35 C. Pathogenicity was confirmed by inoculating sugar beet seedlings with ground barley inoculum of each isolate when beets were at the two leaf growth stage. In each year, AG-2-2 predominated on seedlings collected in Michigan. Over half of these had high temperature tolerance, characteristic of AG-2-2 IIIB. A small number showed an intermediate growth response. Germplasm showed variability in response to different isolates of both AG-2-2 and AG-4. Resistance to AG-2-2 IIIB was found in ARS germplasm, such as EL51 and SR98, with good plant survival in both greenhouse and field screening. An understanding of the prevalence of different AG and ISG is important to determine the impact of resistance, and to ensure resistance screening targets the more prevalent pathogens.