4. Response of bentgrass cultivars to *Microdochium nivale* isolates collected from golf courses in Wisconsin

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Pink snow mold, caused by *Microdochium nivale*, is a major disease on cool season turfgrasses during the winter season in golf courses in northern unites states. Evaluation of old bentgrass cultivars resistance have been reported based on natural field screening, but are not established in growth chamber experiments. The efficient methods and good understanding of factors contributing to pink snow mold resistance and disease development are needed and developed in the growth chamber. To develop a method, quantitative inoculation and incubation of *M. nivale*, amount of inoculum was determined in 3 species of bentgrass with 3 isolates after cold hardening at 5 °C ± 1 in the dark for 15 days. The susceptibility of 17 commercial bentgrass cultivars of which 80 day old grown in the greenhouse were evaluated based on size of disease infection and colonization with 8 isolates of *M. nivale* collected from golf courses in Wisconsin after cold hardening. Effects of Light and days of cold hardening were investigated after cold hardening for 15 days up to 45 days with light and no light. To field trial, susceptibility of 12 commercial bentgrass cultivars to be 2 year old was evaluated size of disease infection and colonization after inoculated with 3 isolates of *M. nivale*. Inoculated plants were incubated in the dark at 10 °C ± 1 in plastic container containing moisture culture media. The best disease infection and colonization was determined at 0.2g fresh mycelium suspension per ml. Significant variation ($P = 0.05$) in susceptibility of 17 commercial bentgrass cultivars was detected. Colonial bentgrass cultivars 'Bardot' and 'Glory' were most susceptible, while creeping bentgrass cultivars 'Pennlinks' and 'Penneagle' were least susceptible. No significant difference of light effect ($P = 0.05$) was detected. Host resistance by days of cold hardening was detected ($P = 0.05$) at 30 days of cold hardening treatments. In field trial, susceptibility of 12 bentgrass cultivars was highly correlated to results from growth chamber experiments. The growth chamber method was evaluated susceptibility of bentgrass cultivar using *M. nivale* isolates and confirmed in the field. The high correlation and their susceptibility

from in growth chamber experiments and field trials demonstrate that the growth chamber method is a useful technique to evaluate pink snow mold susceptibility of bentgrass cultivars. Successful application of this study could help evaluate susceptibility to pink snow mold in breeding resistance and predict a prospective evaluation of bentgrass cultivars to pink snow mold in the field.

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