

Inducing sporulation of *Drechslera graminea*

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Barley stripe, caused by the fungus *Pyrenophora graminea*, is a single-cycle, seedborne disease. *P. graminea* is rarely observed in the nature, but its imperfect state, *Drechslera graminea*, occurs in all infected barley leaves. *D. graminea* produces conidia, which are in clusters of three to five. The fungus can also produce pycnidia, but it is rare in nature. Although barley stripe is effectively managed by seed-treatment with fungicides, losses to this disease still incurs wherever proper seed treatment is not practiced. *D. graminea* does not sporulate on commonly used artificial culture media. Therefore, production of spores to be used for screening accessions and breeding lines of barley for resistance to barley strip was not possible. A simple method was developed to induce sporulation in *D. graminea*. Thirty-six isolates of *D. graminea*, gathered from Canada, Germany, Montana and Syria, were cultured, developed vigorous colonies and produced abundant conidia. Sporulation of the fungus was induced using straw extract from the barley cultivars arta, bowman, bracken, clark, gallatin, and salmas. There were significant differences in sporulation among isolates from different areas as well as among isolates originating from the same barley field. Incubating the culture plates at 16°C under fluorescent light (12 h light/12 h dark) for 5 d following incubation under near ultraviolet (NUV) light for 7 d resulted in 40% higher conidia production. Extract of seed, green

straw or green leaves of barley as well as extract of mature wheat straw did not induce sporulation in *D. graminea* in culture. Twenty-one of the 36 isolates produced pycnidia following the 7-day incubation under NUV light. Five of 25 isolates grown on V8-juice agar failed to sporulate. Germination of conidia of 12 isolates ranged from 72 to 99%.

Biography:

Mohammad Babadoost has received his MS degree in Plant Pathology from Washington State University and completed his PhD in Plant Pathology from North Carolina State University. During 1979-1999, he conducted research on barley and wheat diseases. In 1999, he joined the Faculty of the University of Illinois at Urbana-Champaign (UIUC), and is now a Professor of Plant Pathology and Extension Specialist. At UIUC, he conducts research and extension programs on the biology and management of vegetable and fruit crops diseases, and teaches plant disease diagnosis and management and outreach education skills. He has published one book, four book chapters, one monograph, 10 bulletins, 51 refereed articles, 86 articles in proceedings, 88 abstracts and 175 articles in newsletters. He has developed a profound commitment to sharing his expertise in developing countries to advance the science of plant pathology and establishing food security in the world.