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Influence of temperature on isolation of water molds using a soil baiting technique

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Seedling diseases are a major threat to soybean production in the U.S. with losses reaching 64 thousand bushels in 2014. Water molds (*Pythium spp*. and *Phytophthora spp*.) are among the most important pathogens causing pre- and post-emergence damping off seed and seedlings. Very wet and cool environmental conditions favor disease development by these pathogens. However, which pathogen species are favored under very cool or moderate soil temperatures is unknown. Thus, our objective was to compare the effects of two temperatures on the isolation of water molds using a soil bating technique. Soil samples collected from soybean fields in northern Ohio were placed in pots, flooded for 24 hours and then incubated for two weeks at 15□C or 25□C. A cultivar, Sloan which is susceptible to a wide number of watermolds was planted into the pots. The pots were flooded again for 24 hours 3 days after planting. Following emergence, symptomatic and asymptomatic seedlings were collected and washed to remove soil debris. Plant tissue was placed on PIBNIC selective media to avoid isolation of true fungi. Hyphal tips were transferred to PCA plates and colony PCR was performed using Oomycete specific primers. PCR product from each isolate was submitted for Sanger sequencing for identification. *Pythium spp*. were the most abundant water mold isolated from seedlings across both temperatures. At 25□C a total of 9 species of *Pythium* were present while only 6 species were recovered at 15□C. *P. sylvaticum* and *P. ultimum var. ultimum* were the most frequent recovered species at both temperatures. *P. torulosum* was only recovered at 15□C while *P. hypogynum*, *P. heterothallicium*, *P. inflatum* and *P. middletoni* were only recovered from soil incubated at 25□C. This study provides insight on the influence temperature may have on the abundance, diversity, and pathogenicity of *Pythium spp*.This data will help improve isolation methods of water molds while also prioritizing which species to use for evaluations for both efficacy of seed treatment fungicides and resistance in soybean cultivars.