

## ***In vitro* fungicide Sensitivity of *Pythium* and *Rhizoctonia* Isolates Associated with Peanut Pod Rot**

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Peanut pod rot is caused by a disease complex of oomycete *Pythium* species and the fungus *Rhizoctonia solani*. Peanut pod rot is the most limiting disease for producers in West Texas due to the direct impact on pod quality. Due to the extensive and prolonged use of fungicides to control peanut pod rot, the rise of fungicide-resistant pathogens is concerning. The objective of this study is to test the fungicide sensitivity of pod rot pathogens to help guide fungicide application recommendations. Three *Pythium* isolates and three *Rhizoctonia* isolates were isolated from pod rot samples from West Texas. Isolates were identified to species or anastomosis group level by DNA sequencing of the internal transcribed spacer (ITS) region. Isolates were screened for *in vitro* sensitivity to fungicides azoxystrobin, mefenoxam, metalaxyl, and pydiflumetofen at concentrations from 0.01 to 100 µg/ml active ingredient. Growth inhibition was calculated compared to the unamended untreated control medium. Three species of *Pythium* were identified based on the ITS region, *P. ultimum*, *P. irregulare*, and *P. oligandrum*. Two anastomosis groups of *Rhizoctonia* were identified, AG-4 (HGI) and AG-F. *In vitro* sensitivity to mefenoxam and metalaxyl was reported for *P. oligandrum* and *P. ultimum* at the highest concentration (100 µg/mL). However, *P. irregulare* reported a slight decrease in growth inhibition for both fungicides at 10 and 100 µg/mL. Similarly, in azoxystrobin, *Rhizoctonia* isolates were inhibited by less than 75%. When exposed to azoxystrobin in the presence of the alternative oxidative pathway inhibitor salicylhydroxamic acid (SHAM), the growth inhibition increased in all *Rhizoctonia* isolates to more than 75%. Although a limited number of isolates were obtained for this study, the results suggest the initial development of resistance to the most used fungicides for control of peanut pod rot. Our results captured the pathogen changes that agree with growers' observations. This information will be used to lead recommendations to farmers to implement a fungicide rotation program to avoid the further development of resistance.