CHARACTERIZATION OF

**DIAPORTHE SPECIES INFECTING SOYBEANS (GLYCINE MAX L.) IN SOUTH DAKOTA**

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**ABSTRACT**

Stem canker of soybean (*Glycine max* L.) is caused by fungi of the *Diaporthe/Phomopsis* complex. The disease is caused primarily by *Diaporthe caulivora* (Athow and Caldwell) Santos, Vrandecic and Phillips, which is related to *Diaporthe sojae* Lehman, the pod and stem blight pathogen. The prevalence of stem canker depends on the amount of rainfall received during the early reproductive stages of soybean growth. Recently, the disease has become an emerging problem in South Dakota and in the neighboring states of Iowa and Minnesota. The objective of this study was to characterize the *Diaporthe* species associated with stem canker of soybean in South Dakota. The internal transcribed spacer (ITS) regions of ribosomal DNA of 14 isolates were sequenced, analyzed, and compared with their morphological characteristics. The molecular analysis of ITS sequences by alignment with those of the type strains deposited in GenBank allowed the identification of *Diaporthe longicolla* (Hobbs) Santos, Vrandecic and Phillips and *D. caulivora* to be associated with stem canker in South Dakota. Pathogenicity tests conducted by inoculating a 2-week-old commercial soybean variety confirmed that these *Diaporthe* isolates were pathogenic. There were significant (*P* ≤ 0.05) differences among isolates based on lesion length. Future work will include screening soybean varieties belonging to maturity group-0 and maturity group-I for resistance to the *Diaporthe* species identified in South Dakota.