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Soybean diseases caused by *Diaporthe* species complex

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Diaporthe species on soybean cause diseases which usually manifest in the production of characteristic symptoms: stem canker (D. caulivora and D. aspalathi), pod and stem blight (D. sojae and D. longicolla) and seed decay. The most common and most damaging agent of soybean seed decay is D. longicolla. The objectives of this study were to identify the Diaporthe species that are found on soybean in Serbia, and to provide clear symptomatological and morphological profile for each species following by pathogenicity test.

Total of 160 Diaporthe strains were isolated from diseased plant tissues and seeds collected throughout the soybean-producing area in Vojvodina Province, Serbia. Study included four D. aspalathi isolates from the USA and three D. helianthi strains isolated from sunflower stem.

PCR amplification and sequencing of internal transcribed spacer region of rDNA, partial translation elongation factor 1 alpha and partial large ribosomal subunit was performed. Pathogenicity was tested on plants and seeds of soybean cultivar Sava, using mycelia and conidia.

BLAST analysis confirmed morphological identification for D. caulivora, D. aspalathi, and D. helianthi. From D. longicolla was separated five isolates identified as D. novem. The greatest variability was observed in D. sojae where were identified several different species: D. eres, D. foeniculina and D. rudis.

Pathogenicity test showed that isolates of D. longicolla, D. novem, D. aspalathi, D. caulivora and D. foeniculina were highly pathogenic causing wilting of all plants. Inoculation of soybean seeds showed that D. longicolla, D. novem, D. sojae, D. aspalathi, D. caulivora and D. foeniculina significantly reduced the germination rate of the seeds caused seed decay with 100%.

Our study demonstrated that within the genus Diaporthe on soybeans in Serbia present different Diaporthe species, and all of them can complete life cycle on plants, which indicates that the soybean very suitable host plant for Diaporthe species.