عنوان مقاله:

Study of interactions between sunflower genotypes and black stem (Phoma macdonaldii) isolates using GGE biplot approach

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خلاصه مقاله:

Black stem is one of the most important fungal diseases of sunflower which is caused by Phoma macdonaldii. This research was conducted to clarify the interactions between a few breeder lines and wild-type accessions of sunflower with seven isolates of Phoma macdonaldii, the causal agent, under controlled conditions. The experiment was carried out in randomized complete block design with three replications. Each replication consisted of ۳۰ seedlings. Twenty micro liters of spore suspension was deposited at the intersection of the cotyledon petiole and hypocotyl of four-leaf-stage sunflower seedlings as well. Three, five and seven days after inoculation, seedlings were scored on a ۱-۹ scale for percentage of necrotic area. Highly significant differences were observed among genotypes, isolates and their interactions for disease severity ۷ days after inoculation based on AUDPC (Area Under Disease Progress Curve) values. Two models of GGE biplot including Isolate-based and genotype-based models were used to study the pathogenicity of the isolates and susceptibility of sunflower, respectively. Isolate-focused biplot revealed that there was a considerable difference between virulence of isolates. Based on genotype-focused biplot model, accessions including ۶۶۵ Iowa, ۱۰۱۲ Nebraska, ۲۱۱ Illinois and ۱۰۱۶ Nebraska were more resistant to studied isolates of P. macdnaldii. Results revealed that GGE biplot approach could lead to good understanding about interactions between sunflower genotypes and Phoma macdonaldii isolates.

کلمات کلیدی:

Black stem, Phoma macdonaldii, Isolate-focused biplot, genotype-focused biplot

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