

## **Study of genetic variation of some eggplant cultivars through RAPD-PCR molecular markers and its relatedness to phomopsis blight disease reaction**

### **ABSTRACT**

Disease susceptibility and genetic variability in 10 eggplant genotypes were studied after inoculating *Phomopsis vexans* under confined field conditions. Random amplified polymorphic DNA (RAPD) markers were used to assess genetic variation and relationships among eggplant genotypes. The disease index of leaves ranged 0.208-13.79%, while fruit infection ranged 2.15-42.76%. Two varieties, Dohazari G and Laffa S, were found to be susceptible, 6 were moderately resistant, 1 was moderately susceptible, and BAU Begun-1 was resistant to *P. vexans*. Amplification of genomic DNA by using 3 RAPD primers produced 20 bands: 14 (70%) were polymorphic and 6 (30%) were monomorphic. The highest intra-variety similarity indices values were found in ISD 006, Ishurdi L, Jessore L, and BAU Begun-1 (100%), while the lowest was in Dohazari G (90%). The lowest genetic distance (0.0513) and the highest genetic identity (0.9500) were observed between the ISD 006 and Ishurdi L combinations. A comparatively higher genetic distance (0.3724) and the lowest genetic identity (0.6891) were observed between the ISD 006 and Dohazari G combinations. A dendrogram was constructed based on Nei's genetic distance, which produced 2 main clusters of the genotypes - Cluster I: ISD 006, Ishurdi L, Marich begun L, BAU Begun-1, Marich begun S, and Chega and Cluster 2: Laffa S, Dohazari G, Jessore L, and Singhnath. Genetic variation and its relationship with disease susceptibility were assessed using RAPD markers, to develop disease-resistant varieties and improve eggplant crops.

**Keyword:** Eggplant; Genetic variation; *Phomopsis* blight; Resistance; Random amplified polymorphic DNA