

**DNA MARKER DETECTION OF DOWNY MILDEW (*PLASMOPARA HALSTEDII*)
RESISTANCE IN SUNFLOWER (*HELIANTHUS ANNUUS* L.)**

***Nilay YÖNET*¹, *Ezgi ÇABUK ŞAHİN*², *Yildiz AYDIN*², *Goksel EVCI*³, *Ahu ALTINKUT UNCUOĞLU*⁴**

¹ Marmara University-Turkey

² Marmara University-Turkey

³ Trakya Agricultural Research Institute-Turkey

⁴ Marmara University, Faculty Of Engineering, Department Of Bioengineering-Turkey

nilayyonet@gmail.com

ABSTRACT

Downy mildew, caused by *Plasmopara halstedii*, is one of the most destructive diseases in cultivated sunflower (*Helianthus annuus* L.) responsible for significant yield loss. The development and testing of DNA markers of important agronomic traits and in particular markers of resistance to downy mildew is considered to be one of the most priority tasks for breeding resistant sunflower to downy mildew. Resistance for *Plasmopara halstedii* is inherited and provided by dominant genes. Some of downy mildew resistance genes were characterized, but only a few of them were associated with molecular markers. The study was carried out on five different sunflower crosses as parents and their F2 individuals developed by Thrace Agricultural Research Center in Edirne. To perform the molecular genetic analysis, genomic DNA was isolated from leaf tissues. Genotyping of these materials has been currently carried out using 117 SSR of 4 *Pl*-loci including *Pl6*, *Pl8*, *Pl13* and *Plarg* associated with the resistance of sunflower to downy mildew. Further studies with genotyping and validation of resistance will be especially promising for the marker-assisted selection of sunflower with respect to resistance to the downy mildew. This research has been supported by TUBITAK TEYDEB 1501 Program (Project No: 3150030).

Key Words : Sunflower, downy mildew, SSR-markers, marker assisted selection