

عنوان مقاله:

Validation of microsatellite markers to identify Pl₆, Pl₈ and Plarg genes that control resistance to Plasmopara halstedii in sunflower

محل انتشار:

مجله علوم زیستی خاورمیانه، دوره 19، شماره 5 (سال: 1400)

تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

Downy mildew caused by the oomycete *Plasmopara halstedii* (Farl.) Berl. et de Toni is one of the most harmful sunflower diseases. Among the various measures to control it, the most economical is the development of resistant genotypes. At present, Pl₆, Pl₈, and Plarg loci are promising for use in breeding, providing resistance to all known *P. halstedii* races. Microsatellite markers (SSR) help to control the transfer of genes that control resistance in breeding material. However, validation of the marker is needed to prove its reliability in gene detection. There was studied the polymorphism of ۹ microsatellite loci in ۱۹۶ sunflower lines with different resistance to downy mildew. The ORS۳۲۸ microsatellite locus was chosen as a marker of the Pl₆ gene. Amplified fragment with ۲۷۱ bp allows identifying genotypes resistant to the race ۳۳۰. The lines that are the sources of the Pl₈ gene did not differ from the others in the allelic composition of the ORS۷۸۱ locus. Among the analyzed breeding samples, no polymorphism was revealed at this locus. To identify the Plarg gene, SSR markers ORS۶۶۲ and ORS۵۰۹ were selected. The analysis of ۱۲ samples of the F_۲ generation from RHA-۴۱۹ × I۳BC۲ (VK۵۸۵ × VK۱۹۵) crossing at these loci showed that both markers are inherited codominantly. The studied DNA markers can be used in marker-assisted selection (MAS) of sunflower for resistance to downy mildew pathogen.

کلمات کلیدی:

SSRs, MAS, *Plasmopara halstedii*, Resistance, sunflower

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<https://civilica.com/doc/2005037>

