



Seventh Article (Considered Single - Shared with others outside the specialization – Published in local Journal).

Molecular markers for resistance of chocolate spot disease in faba bean (*Vicia faba* L.) using ISSR-PCR. (2015).

Middle East Journal of Scientific Research, 23, 558-567.

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Article status	Considered Single - Shared with another outside the specialization – Published in local Journal	Impact Factor: --
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Abstract

Seven faba bean genotypes were assessed to evaluate chocolate spot disease resistance that is caused by *Botrytis fabae*. Morphological, biochemical and molecular methods were used under artificial infection in the greenhouse and natural infection in the two successive winter seasons 2011/2012 and 2012/2013. At the same time, a field experiments were carried out under harsh environmental conditions at the Experimental Farm (Demo "new reclaimed and saline soil") in the Faculty of Agriculture, Fayoum University, Egypt during winter season of 2011/2012 and 2012/2013. Yield components, disease severity, disease index and the genetic variation among seven faba bean cultivars viz: Sakha 3, Giza 716, Giza 843, Misr 2, Giza 402, Inbred1 and Inbred 2 were evaluated. The highest mean values for yield components were recorded for Inbred 2 followed by Inbred1. Biochemical and molecular markers were used to identify the level of polymorphism and study the genetic relationships among the tested faba bean cultivars. Protein produced 10.42% polymorphism, while fifteen ISSR primers 51% polymorphism and were more reliable. HB4 and HB10 primers produced the highest polymorphism of 73%. The dendrogram for the genetic relationships of the seven faba bean genotypes based on overall markers separated them into two major groups. From the previous results, a considerable level of variations was detected among seven faba bean cultivars by biochemical and molecular markers which can help to choose the most suitable cultivars for chocolate spot resistance, high yield, presented considerable interest for the genetic studies.