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The problem of Orobanche in Tunisia: current state, specificity and main results of the national Faba bean breeding program to improve tolerance/resistance to Orobanche foetida and Orobanche crenata

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Conference: Conference: Workshop and Mini-Symposium: Building a new research alliance to reclaim Faba bean production area abandoned to Orobanche



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Abstract

In Tunisia legume crops suffer from several problems mainly broomrape attacks (*Orobanche* spp. and *Phelipanche* spp.) causing severe damages and important yield losses mainly on faba bean. Among the several species reported in Tunisia only *Orobanche crenata* and *Orobanche foetida* were found frequently parasitizing some grain legume crops. Actually, *O. foetida* is considered as the most important agricultural problem of faba bean production in the North West regions of Tunisia, causing yield losses of 70 - 95%. In Tunisia, this parasite was reported parasitizing Faba bean (*Vicia faba*), Chickpea (*Cicer arietinum*), Vetch (*Vicia sativa*), Narbon vetch (*Vicia narbonensis*), Medics (*Medicago truncatula*, *Medicago scutulata*), Grass pea (*Lathyrus sativus*), Lentil (*Lens culinaris*), Fenugreek (*Trigonella foenum graecum*) and many other crop and wild species. Recent studies revealed a genetic variability between Tunisian, Moroccan and Spanish *O. foetida* populations and showed that the Tunisian ecotype seems to be more pathogenic, virulent and aggressive. In order to limit the devastating effects of these parasitic plants, several strategies have been used for controlling broomrapes including chemical, cultural biological methods but without full satisfaction. An integrated control method based essentially on the genetic tolerance/resistance seems to be the best to control broomrapes. In Tunisia, within the food legume breeding program at the field crop laboratory, research activities on Orobanche were intense since the 1990s mainly on faba bean. The main missions of this program were (i) to select high yielding faba bean genotypes locally adapted to Tunisian grown areas and tolerant/resistant to both *O. foetida* and *O. crenata* and (ii) to explore the different mechanisms of tolerance/resistance and control in order to limit the devastating effect of these parasitic plants. As result of this program many tolerant/resistant genotypes were selected from several ICARDA trials (FBION) and mainly from crosses done in Tunisia. Recently, one small seeded faba bean variety "Najeh" were registered in 2009 in th

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Tunisian catalogue of plant varieties. In 2012, the program had submitted another small seed faba bean variety "Chourouk" shown better tolerance than
"Najeh".

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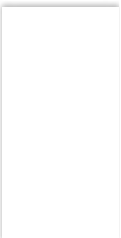
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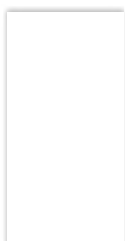
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

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January 2013

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December 2013 · SABRAO journal of breeding and genetics · Impact Factor: 0.23

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