International Conference on Pulses, Marrakesh, Morocco, 18-20 April, 2016

Poster Presentation number 47:

Title: *Orobanche crenata* effect on some faba bean genotypes and the genetic variation between three Orobanche isolates

Aziza M Hassanine, Sabah M Attia*, Rehab Abd El-rahman and MAM Ibrahim
Agricultural Research Center, FCRI, Egypt. *(sb_attia@yahoo.com)

The present study was carried out at Giza Research Station under the naturally Orobanche infested fields during 2013/14 and 2014/15 seasons, to study the effect of Orobanche infestation on seed yield and yield components of four tolerant faba bean genotypes (Giza 843, Misr1, pop. 10, X-2054 and the susceptible genotype Giza 2. The genetic diversity of Orobanche isolates from both tolerant and susceptible cultivar was also studied. Highly significant differences were observed in plant height, number of branches/plant, number of pods/plant, seed yield and 100-seed weight. For Orobanche dry weight (g)/m2 X-2054 and population 10 had the lowest Orobanche dry weight. Giza 2 recorded the highest Orobanche dry weight (g)/m2. Results showed the superiority of X-2054 population 10 and Misr 1 in Orobanche infested fields and therefore these genotypes are recommended for breeding to tolerate Orobanche. The genetic diversity among three isolates of *Orobanche crenata* were analyzed using ten RAPD primers. A total of 68 bands were recorded 47.1% of them were polymorphic and 11 unique markers which identify the three Orobanche isolates. The highest number of unique markers was observed in isolate 3 (Orobanche isolated from the susceptible cultivar Giza 2) which scored 8 unique markers, two unique markers characterized isolate 1 (Orobanche isolated from the tolerant cultivar Giza 843) and one unique marker identified for isolate 2 (Orobanche isolated from the tolerant cultivar Misr 1). The three Orobanche isolated were grouped into two clusters. Where, isolate 3 separated alone. While, isolate 1 and isolate 2 (were in the second cluster. The highest similarity was 88% between isolate 1 and isolate 2. Hand weeding is not economical. Further, if the pulled shoots are kept in the field they are able to produce seeds, so the weed problem persists. If the practice of harvesting young shoots for human consumption were to spread, this would not only help to reduce the damage to the host plant and to reduce the broomrape seed-bank in the soil, but also provide an additional source of incomes to small holders. This approach would not only provide a sustainable means of control but also contribute towards economic sustainability. The success of such an approach would depend on the acceptance of these products by the markets. To meet that demand in Egypt, we need to show and spread the benefits of using broomrape and to develop the technology for broomrape production, collection and distribution at a reasonable price. Many requirements to meet, but the prospect is certainly food for thought.