WP5.1. Greenhouse and field screening of germplasm for resistance to broomrapes

Several potential chemical, biological, cultural and genetic methods are recommended for controlling the parasitic plant Orobanche spp. During the last decades several partial faba bean resistant varieties and breeding lines to Orobanche spp. were recently selected and developed by the Tunisian breeding programme.

DID YOU KNOW?

The Tunisian breeding programme released four faba bean small seeded varieties partially resistant to Orobanche spp. (Najeh, Chourouk, Chams, Zaher)

Cropping season 2019/2020: 112 faba bean entries from different origin were screened in the field for resistance to *Orobanche foetida at* Oued Beja Research unit.

11 lines were retained for further evaluation during the cropping seasons 2020/21 and 2021/22, in comparison with the susceptible check cv. Bachaar (G12) and the tunisian commercialized resistant varieties: Zaher (G13), Chams (G14), Chourouk (G15), Najeh (G16)

Field screening

During the cropping seasons: 2020/21 and 2021/22, the selected lines showed a good behaviour toward orobanche compared to the susceptible check G12 (cv. Bachaar). The highest yield was recoded for G8 which produced five times yield higher than cv. Bachaar. The number of orobanche was also six times less for G8 than cv. Bachaar (Figs.1 and 2).

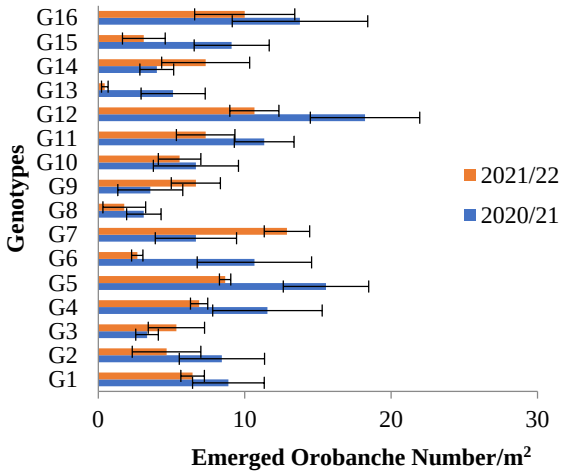

Fig. 1 Number of Emerged Orobanche/m²/Genotype

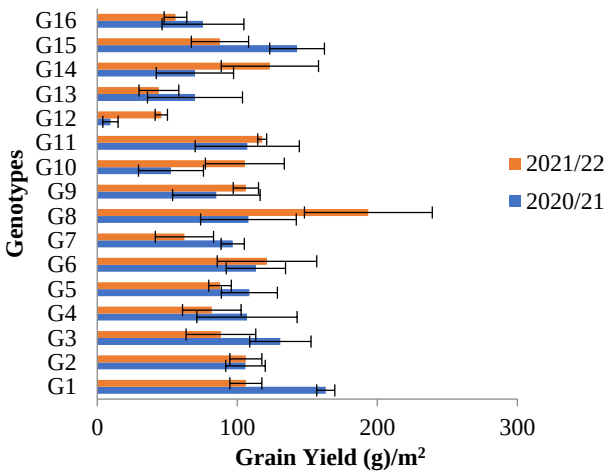

Fig.2 grain Yield (g)/m²/Genotype

Faba bean field screening for resistance to *Orobanche foetida*

Contact

[Mohamed Kharrat
Email: mohamed_kharrat@outlook.com]

Among the eleven lines selected from field the best seven were used for Petri dishes and pot experiments

Petri dish experiment

G8 showed the lowest germination rates and number of tubercles as compared to the susceptible check G12 (cv. Bachaar) for both orobanche species (Figs. 3 and 4).

Faba bean screening in Petri dishes

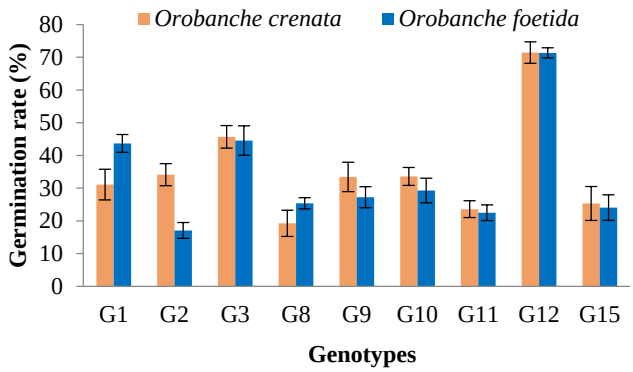

Fig. 3. Germination rate (%) of orobanche seeds

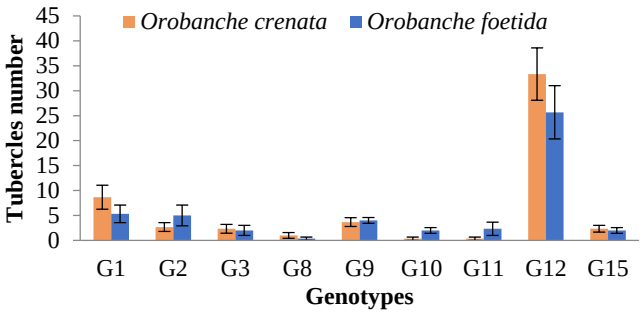

Fig. 4. Number of Orobanche tubercles/plant (Petri dish experiment)

Pot experiment

The results recorded from pots, showed that G8 presented the best level of resistance to orobanche based on the number of emerged orobanche and tubercles fixation and pods produced compared to the susceptible check G12 (cv. Bachaar) (Figs. 5 and 6).

Faba bean screening in pots

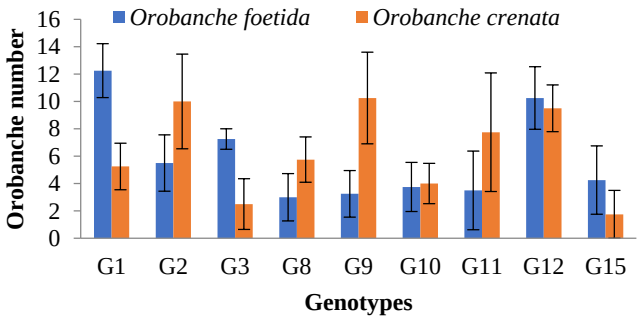

Fig. 5 Number of emerged Orobanche and tubercles/plant (pot experiment)

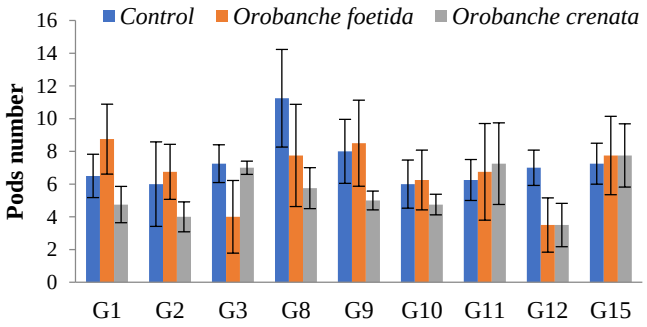

Fig. 6 Pod numbers/plant

G8 will be proposed for the registration in the Tunisian official catalogue of plant variety

Contact

[Mohamed Kharrat
Email: mohamed_kharrat@outlook.com]