

Mitigate *Phelipanche aegyptiaca* Pers. infestation considering natural environment conservation

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ABSTRACT

Growing cover crops with allopathic characteristics is a way to biologically control the weed *P. aegyptiaca*. Allelochemicals are present in almost all plants and in many plant tissues including leaves, stems, flowers, fruits, seeds and roots. This experiment was conducted to compare effects of allopathic crops on the germination rate of *P. aegyptiaca* seeds. Weed infestations were tested in Polyethylene (PE) bags and pot experiments. 27 crops, of different families, were grown in 2-Kg pots containing sterile soil infested with 0.6 g of seed. The control pots contained only 0.6 g of *P. aegyptiaca* seeds. Two month-old plants were incorporated into the soil from the surface and then tomato seedlings (*Lycopersicon esculentum* Mill.) were planted in the pots. Cotton (Malvaceae family) was among the cultured plants, used as a trap crop to thoroughly eradicate the threat of *P. aegyptiaca*. The most significant reduction in broomrape shoot and capsule number was demonstrated in those pots that contained cotton and sorghum, and in those that contained tomato; tomato dry weight significantly augmented. The results from the PE bags were in parallel with those of the pots. The germination rates of *P. aegyptiaca* (%) next to the plants in PE bags ranged from 8.333% to 55.333% respectively in millet and pepper. Except for sunflower, vetch, soy bean, chick pea, sainfoin, alfalfa, zucchini and sesame, which demonstrated catch crop, activity, the other cultivated plants; corn, oat, beet, sugar beet, triticale, castor-oil plant, millet, fiber flax, pepper, cotton and sorghum were determined as trap crops for the weed *P. aegyptiaca*.

Keywords: catch crop, cotton, declining broomrape infestation, pepper, trap crop)

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INTRODUCTION

Weed species of the group Orobanchaceae are the most economically damaging root parasites to affect crops in warm dry regions of the Mediterranean, Middle East and neighboring regions and in particular those species belonging to the genera

Orobanche and *Phelipanche* (broomrapes) (Joel et al. 2007, Parker 2009). The crop species most commonly attacked by these parasites were from the plant families *Compositae*, *Solanaceae* (Romanova et al. 2001, Ross et al. 2004), *Fabaceae* (Goldwasser et al. 1997), *Umbelliferae*,