Evaluation of faba bean genotypes for yield and resistance to Fusarium root rot under greenhouse and field conditions

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Abstract:

Faba bean is a paramount grain legume crop, which plays an important role in the food security for humans and animals, in addition to its vital role in sustainable agriculture. However, this crop is prone to yield losses due to infection with Fusarium root rot. We evaluated 16 faba bean genotypes for yield and resistance to Fusarium root rot as well as study the enzymes activity, including total phenolics, peroxidase, catalase and ascorbate, associated with resistance to Fusarium solani. We found that some genotypes, including Giza-2, Giza-843 and Nobaria-2, showed high seed yield per plant under normal field conditions as well as high values of the total phenols, Guaiacol-dependent peroxidase activity, Catalase activity and Ascorbate peroxidase activity content. Furthermore, Nobaria-1 and Sakha-4 showed high resistance to Fusarium root rot with modest seed yield per plant, along with high values of the aforementioned enzymes. Our results imply the role of high content of phenolics as well as the other enzymes activities in the host-plant resistance against root rot caused by F. solani.

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