

RESEARCH ARTICLE

# Efficacy of fungicides and plant extracts against Fusarium wilt in fenugreek

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## ABSTRACT

Four fungicides and five plant extracts were evaluated *in vitro* for their efficacy in enhancing the seed germination and seedling vigour and in reducing pre-and post-emergence mortality by seed treating method against seed borne *Fusarium oxysporum* Schlecht, causing wilt in fenugreek. Seed treatment with Bavistin @ 1.5g /kg seed and Neem leaf extract @ 5 ml/ 10g seed significantly enhanced seed germination, seedling vigour by preventing pre-and post-emergence mortality over control.

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## INTRODUCTION

Fenugreek (*Trigonella foenum-graecum*), an annual legume native to the Mediterranean region, locally known as *Methi*, is cultivated not only as a leafy vegetable but also for medicinal purposes (Som and Maity, 1993). It is cultivated in countries like India, Argentina, Egypt, Southern France, Morocco and Lebanon. Green methi is a good source of iron (Fe) as well as other minerals for human beings (Chhibba *et al.*, 2000). Diseases are the major constraints to the production of fenugreek. Among the diseases, wilt caused by *Fusarium oxysporum* Schlecht is serious threat and its frequency varies between 40 and 60 per cent. Young plants are more susceptible than older ones. At seedling stage, the recorded rot incidence was 50–75 per cent. The use of chemicals for managing the disease is expensive and often leads to environmental pollution, development of fungicide resistant strains of the pathogens and upset of the biological equilibrium in soil (Singh, 1984). In the latest ecosystem approach on integrated pest management, biological control has become the basic component. To alleviate these ill effects, introduction of environmentally safe long lasting and ecofriendly bioagents

are highly essential in the present and future plant disease management strategies. Therefore, the present study was taken up in this area to develop an eco-friendly disease management strategy in fenugreek.

## MATERIALS AND METHODS

Leaf extracts of each plant (neem, aak, tulsi, ardu and garlic 5 ml/10 g) leaves and cloves were prepared separately by washing the leaves, chopping and grinding them in a pestle and mortar with the addition of cold water at the ratio of 1 : 2 (1 part of leaf : 2 parts of water). The extracts were squeezed through cotton wool and used immediately (Alice, 1984). Seeds were soaked for 30 minutes (Jacob and Sivaprakasam, 1994). In case of fungicides, apparently healthy surface sterilized seeds of fenugreek were artificially inoculated with 10 days-old culture of *Fusarium oxysporum*. Inoculated seeds were treated with four fungicides (Bavistin, (1.5g/kg), Captan, (2.5g/kg), Raxil (1.5g/kg) and Thiraum (2.5g/kg). The treated seeds were placed on moistened blotting papers in Petridishes at the rate of 20 seeds per Petridish with 4 replications for each treatment. Inoculated untreated seeds served as control. After 15 days