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RESEARCH ARTICLE

Effect of different bio-inoculants on germination and biometric characters of chilli (var. Parbhani Tejas)

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ABSTRACT

In chilli (*Capsicum annuum* L.) several diseases all caused from fungal, bacterial and viral origin. Among the fungal diseases, damping off is caused by species of *Pythium* is very common in the nursery which causes about 90 per cent mortality in nurseries and fields. Present experiment was carried out in pot culture at Department of Plant Pathology, MAU, Parbhani in Completely Randomized Design with three replications. Results revealed that seed inoculation with *Trichoderma harzianum* recorded significantly maximum seed germination (91%) over control(81%) followed by *Trichoderma viride* (89%), PSB (88%), Acetobacter (87%), Azotobacter (87%) and significantly maximum shoot length was recorded in seed inoculation with *Trichoderma harzianum* (3.40 cm) over control(2.24 cm) followed by *Trichoderma viride* (3.30 cm), *Pseudomonas fluorescens* (3.29 cm), PSB (3.11 cm) and significantly maximum shoot fresh weight was recorded seed inoculation with *Trichoderma harzianum* (0.265 g) over control(0.1888 g) followed by *Trichoderma viride* (0.250 g), *Pseudomonas fluorescens* (0.245 g), PSB (0.231 g) and significantly maximum shoot dry weight was recorded seed inoculation with *Trichoderma harzianum* (0.089 g) over control(0.041 g) followed by *Trichoderma viride* (0.084 g) and significantly maximum root length was recorded seed inoculation with *Trichoderma harzianum* (8.4 cm) over control(5.9 cm) followed by *Trichoderma viride* (8.1 cm), *Pseudomonas fluorescens* (8.0 cm) and PSB (7.9 cm). Lastly, it can be concluded that *Trichoderma harzianum* seed inoculation has positive effect in chilli and appreciable increased the germination per cent, shoot length, root length, biomass and seedling vigour.

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INTRODUCTION

Chilli (*Capsicum annuum* L.) is a native crop of South America and is most widely consumed as a universal spice of India. Chilli belongs to genus *Capsicum*, under Solanaceae. India is the largest producer of chillies and contributes 25 per cent of total world production and also largest consumer and exporter of chilli. India produced about 11.75 lakh tones of chilli on area of 8.11 lakh ha in 2005-2006 (Anonymous, 2008).

Chilli crop is attacked by more than a dozen diseases caused by fungi, bacteria and viruses. Among these diseases, damping off incited by *Pythium* spp. has been reported to cause about 90 per cent mortality in nurseries and fields. Two most common species are *Pythium aphanidermatum* (Edson) Fitz. and *Pythium ultimum* Trow. Manoranjitham and Prakasam (2000) studied seed treatment with talc based formulation of *Trichoderma viride* and *Pseudomonas fluorescens*, which effectively reduced pre and post-emergence damping off of chilli due to *Pythium aphanidermatum*. The pathogen being soil borne is uneconomical to control with fungicides alone, as well as the chilli cultivars under cultivation are found to suffer severely by this disease. Hence, for management of soil borne diseases, including damping off, integration of fungicides, bioagents and bioinoculants is essential. Therefore, present studies were