



RESEARCH ARTICLE

Integration of potassium phosphonate and bioagent against phytophthora foot rot (*Phytophthora capsici* Leonion) of black pepper (*Piper nigrum* L.) management in arecanut cropping system

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ABSTRACT

Phytophthora foot rot is a serious disease in black pepper in Uttara Kannada district of Karnataka. Application of systemic fungicide, potassium phosphonate @ 0.3 per cent alone as spraying (3 l/vine) and drenching (5 l/vine) or integration of systemic fungicide, potassium phosphonate @ 0.3 per cent as spraying and drenching with bioagent, *Trichoderma viride* @ 50 g/vine along with 5 kg of farm yard manure to the basin of the black pepper vines during June and August were effective in reduction of disease incidence of Phytophthora foot rot of black pepper.

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INTRODUCTION

Black pepper (*Piper nigrum* L.) king of spices, native to Western Ghats of India is being cultivated as an intercrop in arecanut based multistoried cropping system in Uttara Kannada district of Karnataka. The vines are trained on live standards of arecanut (*Areca catechu* L.) to fetch extra revenue to the planter without much additional cost of cultivation.

During 1978 sudden mortality of the vines due to rampant appearance of dreaded disease Phytophthora foot rot (*Phytophthora capsici* Leonian) was the major constraint for cultivation of the crop (Sastry, 1982, Dutta, 1984 and Sarma *et*

al., 1994). Since, 1978 the disease appeared in epiphytotic form leading to elimination of the important popular local cultivars from plantations. The crop is cultivated in valley situation where the microclimate having very high humidity (80-100 per cent) with low temperature (18-28°C) and less sunshine. These conditions are very conducive for survival of the pathogen, its multiplication and spread. The pathogen is versatile in nature and infects all parts of the vine *i.e.* root, collar, stem, leaves, inflorescence and spike. It is a soil borne fungus and can survive in infected plant debris for long period. Single method is not effective in checking the disease. Hence, an integrated approach comprising phytosanitary measures, cultural, chemical, biological, resistant/tolerant cultivars are