



RESEARCH ARTICLE

Determination of median inhibitory concentrations of two fungicides against *Fusarium oxysporum* f.sp. *vanillae* associated with stem rot disease of vanillae

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ABSTRACT

Two fungicides were evaluated for their *in vitro* effect on the colony growth of *Fusarium oxysporum* f.sp. *vanillae*, the causal agent of stem rot of vanillae after 48 hrs and 144 hrs of inoculation in pre-amended Potato dextrose agar (PDA) medium. The fungicides showed variable response in inhibiting the growth of the pathogen according to their nature and specificity at different inhibitory concentrations of Tricyclazole (Beam 75% WP) and Matco (Metalaxyl 8 %WP Mancozeb 64% WP). The maximum per cent inhibition on growth of *Fusarium oxysporum* f.sp. *vanillae* by Tricyclazole was high at concentration of 800 ppm 79.99 per cent at 48 hrs, 90.99 per cent at 144 hrs of incubation. The Matco fungicide showed 79.87 per cent inhibition at 800 ppm concentration at 48 hrs and inhibition was 90.78 per cent at 144 hrs post treatment. Interestingly, the toxicity of Tricyclazole was found to increase with time intervals from 24 hrs (IC₅₀ value=589.9 ppm) till 144 hrs (IC₅₀ value=107.1 ppm). The toxicity of fungicide Matco was also found to increase over time from 24 hrs (IC₅₀ value=575.2 ppm) to 144 hrs (IC₅₀ value=33.00 ppm) post treatment against *Fusarium oxysporum* f.sp. *vanillae*.

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INTRODUCTION

Plant diseases are one of major constraints in food production. Among several diseases of crop plants, fungal diseases constitute the major group and some are often difficult to control. Vanilla is a crop of highly economic value for its pleasant flavour and the second expensive spice after saffron (Anonymous, 2004). The crop is grown in several parts of the world including India.

The substance responsible for the unique fragrance and flavour of the vanilla bean is *Vanillin* (C₈H₈O₃). In Karnataka, vanilla is cultivated as intercrop as well as pure crop in the

districts, like Chikmagalur, Udupi, Shimoga, Hassan, Mysore, Kodagu, Dakshina Kannada and Uttara Kannada. The exporting countries of vanilla are Indonesia, Comoros, Uganda and India. The crop has economic significance in the Indian economy and has significant demand in the international market.

Vanilla plant is affected by several plant pathogens. Among the diseases on vanilla, stem rot caused by *Fusarium oxysporum* f. sp. *vanillae* is one of the important constraints for the vanilla cultivation and responsible for the decreasing of vanilla production (Suprapta *et al.*, 2006; Jayasekhar *et al.*, 2008).