

RESEARCH ARTICLE

Bacterial wilt of banana in West Bengal, India

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ABSTRACT

Bacterial wilt of banana caused by Race 2 of *Ralstonia solanacearum* (Smith) Yabuuchi *et al.* is prevalent in West Bengal affecting commonly cultivated cultivars - Champa (AAB), Martaman (AAB), Kanthali (ABB), Giant Governor (AAA) and Kanch Kala - a cooking variety (ABB). In variety Champa, symptoms of the disease appear as reddening of the basal part of the pseudostem followed by yellowing of leaves leading to wilting of plant. Causal bacterium oozes out at the cushion of peduncle. Vascular blackening is found on any part of the rhizome but concentrated at the middle in wilted plant. Planting of diseased suckers show slow and stunted growth with a few leaves, usually two. The leaves show necrotic symptoms. Gradual yellowing of leaves followed by wilting along with typical vascular browning are the common symptoms in cultivar Kanthali, Martaman and Kanch Kala. Occasionally reddening and splitting of pseudostem longitudinally at the base of plant are found in cultivar, Martaman. The affected plants of Giant Governor do not show any wilt symptom. Leaves do not turn yellow. Affected plants grow slowly and drying of leaves along margin is the common symptom in plants. A selective medium (Casein hydrolysate 1g, Glucose 5g, Peptone 10 g, Agar agar 20 g, 2,3,5 - Triphenyltetrazolium chloride (TZC) 50 mg, Crystal violet 50 mg, Polymyxin B sulphate 10 mg, Tyrothricin 20 mg, Chloramphenicol 5mg, Cycloheximide 50mg, Distilled water up to 1000 ml) was standardized for isolation of the causal bacterium.

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INTRODUCTION

Banana (*Musa spp.*) is an important fruit crop in tropical and subtropical countries. In some countries like Uganda and Tangania it holds the status of food crop. Banana is the second largest produced fruit after citrus, contributing about 16 per cent of the world's total fruit production (FAO, 2009). India is largest producer of banana, contributing to 27 per cent of the world's banana production. Tamil Nadu is the leading producer of banana followed by Maharashtra and Gujarat in India (Mahapatra *et al.*, 2010). In West Bengal, the area under banana cultivation has been surprisingly increased during the last ten years. Three districts of Gangetic Alluvial Zone *viz.*, Hoogly, Nadia, North 24 Parganas are the major contributors in West Bengal. In this state, cultivar Champa

(AAB), Martaman (AAB) and Kanthali (ABB) are the popular cultivars along with Giant Governor (AAA). With the increase in commercial cultivation of banana, disease pest gradually becomes limiting factor in achieving higher and quality production. Among the diseases, Sigatoka and Panama wilt are considered so far, to damage this crop (Misra, 2002) in West Bengal. In addition to these diseases, bacterial wilt is appearing every year. After the first report of this disease as early as in 1968 (Chattopadhyay and Mukhopadhyay, 1968), existence of Moko disease (bacterial wilt) in West Bengal was questionable. Present study includes the record of symptoms of the disease and its simple diagnostics, varieties affected, mode of isolation of the pathogen and race determination to confirm the incidence of the disease as serious threat to banana cultivation in West Bengal.