Abstract

Banana is a popular and important crop among many communities in East Africa. It is used both as a subsistence and cash crop. Bananas provide a major source of carbohydrates for over 4 00 million people in tropical countries, about 25% of these being in Africa. In Uganda, Burundi, and Rwanda, banana consumption ranges from 250 to 400 kg per person per year. In Kenya, production stands at around 210,000 metric tonnes annually. However, ba nana production is threatened by a number of viral diseases, banana streak disease (BSD) being one of the most significant in Kenya. Others include banana bract mosaic disease (BBrMD) and cucumber mosaic disease (CMD) . Banana streak disease is caused by Ba nana streak virus (BSV). A recent study identified seven BSV isolates in some banana growing regions of Kenya. However, the distribution of these isolates across the country is unknown. In this study, 65 symptomatic samples were used to determine the distr ibution pattern of BSV isolates in Kenya. The samples were sourced from five major banana growing regions of Kenya (Central Rift Valley , Eastern, Central, Nyanza and Western provinces). Detection of two Musa RNA viruses (Banana bract mosaic virus and Cucum ber mosaic virus) w as also carried out on the same symptomatic samples in order to determine any co - infection relationships . A set of 32 BSV-asymptomatic samples were used to compare the sensitivity of three BSV indexing techniques (TempliPhi, immuno - captu re - PCR and direct PCR). Identification of the various BSV isolates w as achieved through restriction fragment length polymorphism (RFLP) analysis. Analysis of variance and student‟s t - test were done using the Statistical Analysis System (SAS) software in or der to compare the means of the detection techniques . The Mysore isolate was found to be the most widely distributed in the Kenyan BSV ecology (48% overall detection) with its highest incidence being recorded in Kisii - Nyanza (37.5 % of all the Mysore - infect ed samples) . The samples that were found to be infected with the Mysore isolate appeared to exhibit relatively more severe BSV symptoms. There was absolutely no detection of any RNA virus in the 65 BSV - symptomatic samples showing that there was no co - infec tion between BSV and the two RNA viruses . There were significant differences ($P < 0.05$) among the detection means for the four BSV detection techniques . Direct PCR showed a detection of 93. 8 % but most of these detections were treated as false positives. Temp liPhi is therefore recommended for routine indexing of Musa tissues for BSV due to its higher detection capacity .