

Abstract
Cocoa (Theobroma cacao L.) is one the major export crops in Papua New Guinea (PNG). Cocoa suffers severe losses due to Vascular streak dieback (VSD) caused by Oncobasidium thoebromae Talbot & Keane). Use of host resistance is the most sought criteria in the cocoa breeding program. The availability of a rapid, efficient and reliable method for screening large number of cocoa germplasms at the seedling stage to select for resistance is a major impediment in the success of the cocoa breeding program. A study was conducted at the Papua New Guinea University of Technology with 10 and nine cocoa clones respectively in 2011 and 2012. The objectives of the study were to standardize the in vitro leaf disc inoculation technique for screening cocoa germplasm and compare the in vitro results with the field reactions. A 30 mm diameter leaf discs from the third leaf from the tip of three month old cocoa seedling was placed in the petri dish moist chamber and inoculated with a five day old fungal mycelial agar block of three millimeter diameter. Data on lesion diameter was recorded after sixth day of inoculation.

The results showed that clone K82 was susceptible while clone 17-3/1 was resistant. These results are also in line with the field reactions and confirmed the earlier in vitro results. Some of the in vitro results are not in agreement with the field results and the factors responsible for the discrepancies are discussed. For the convenience of the operations, the leaf disc inoculation methods could be used as an integral component in the cocoa breeding program to complement the sick plot method for preliminary screening of large number of seedlings for early detection of resistance against VSD.