

Molecular Confirmation of *Foc* race 1 is Crucial for Screening of Silk Banana for Fusarium Wilt (*Fusarium oxysporum* f. sp. *cubense*)

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Abstract

Panama disease or *Fusarium* wilt of banana caused by *Fusarium oxysporum* f. sp. *cubense* (*Foc*) is a wide spread disease in Sri Lanka. 'Kolikuttu' (AAB, silk banana) which fetches a high market price is highly susceptible for *Foc*. Banana improvement through conventional techniques is cumbersome due to its sterility and polyploidy nature. However, development of resistant or less susceptible varieties to *Foc* is indispensable for sustainable banana production. Therefore, the present study was aimed to develop *Foc* resistant or less susceptible 'kolikuttu' variety through *in-vitro* mutagenesis. Chemically (1% Ethyl methanesulfonate) treated shoot tips of kolikuttu variety 'Agra' were *in-vitro* multiplied for 3 subculture cycles and resulted buds and plantlets were screened for *Foc* under *in-vitro* and protected house conditions, respectively. During the period, 16 cultures were prepared using the vascular strands of infected pseudostems of kolikuttu banana collected from different locations. Variations in mycelial growth and morphology of the cultures were observed among the samples on Potato Dextrose Agar plates. Therefore, the pathogen was confirmed through PCR before employing in screening. Genomic DNA from fresh single conidia cultures was isolated from 16 samples using CTAB method. PCR was carried out with *Foc* race 1 specific primers (FP-GTTGAGTCTCGATAAACAGCAAT, RP-GACGAGGGGAGATATGGTC) with positive control (DNA from pure culture of *Foc*) and confirmation was made by the presence of 354bp amplicon. The molecular detection discriminated only 11 isolates to be *Foc*. The remaining isolates may be non-pathogenic forms of endophytic *Fusarium* present in the pseudostem of infected banana. The results suggested the necessity of molecular confirmation of *Foc* in screening of banana against *Fusarium* wilt.

Keywords: *Fusarium* wilt, Kolikuttu banana, Molecular confirmation

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Acknowledgement:

The authors wish to thank Sri Lanka Council for Agricultural Research Policy for funding the research project on "In-vitro mutagenesis of kolikuttu banana under NARP" and Ms. W.A.P.G. Weerathne, Head, Division of Plant Pathology, HORDI Gannoruwa, Sri Lanka for shearing laboratory facilities for PCR.