Evaluation and selection of the most cost effective media for *in vitro* cultivation of banana stem rot fungus, *Marasmiellus* sp.

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Abstract

Marasmiellus stem rot is a Basidiomycetes fungal disease first recorded in banana (*Musa* sp.) fields in Jaffna, Sri Lanka. Stem rot causes damage directly on pseudo-stem and indirectly on banana leaves as well as its fruits. A research was carried out to select the best low cost media for the *in-vitro* studies to observe the bionomics and colony morphology of the *Marasmiellus* sp. to preserve the cultures for long time without loosing its vigour, spore viability and infection capability and to determine effective control measures under laboratory conditions. Initially, the fungal colony was cottony white and later turned to creamy colour on the standard potato dextrose agar (PDA), however it failed to produce reproductive structures in culture. Other locally available cost effective media such as King Yam (*Dioscorea* sp) (KY) and Elephant foot Yam (*Amorphophallus paeoniifolius*) (EFY), Sago (SG), Filter paper (FP) were taken as treatments with the control PDA medium. The results revealed that KY and EFY were cost effective excellent substrate for the production of cultures of *Marasmiellus* sp under *in-vitro* studies compare to sago (SG), filter paper (FP) with some recommended standard culture media which are water agar (WA) and nutrient agar (NA). The mean colony diameter after four days was about 90 mm on KY, PDA, EFY and significantly on par with NA (69.15 mm), SG (55.45 mm) WA (31.15 mm) and FP (22.95 mm). This study confirms KY and EFY are the most suitable cost effective media over the other tested substrates for *in-vitro* studies of *Marasmiellus* sp compared to high cost PDA.