

**DEVELOPMENT OF A SUITABLE LOW COST
LIQUID MEDIUM FOR BIO FUNGICIDES**

A dissertation submitted to the
Faculty of Animal Science and Export Agriculture
Uva Wellassa University
In partial fulfillment of the requirements for the award of
Bachelor of Science in Palm & Latex Technology and Value Addition

By
UDAGE NISANSALA UDAYAKUMARI

**Palm & Latex Technology and Value Addition Degree Programme
Faculty of Animal Science and Export Agriculture
Uva Wellassa University of Sri Lanka**

2015

ABSTRACT

Soil borne plant pathogenic fungi results in sever plant yield losses. Intensified use of chemical control destroys beneficial organisms and it may have undesirable health and environmental pollution risk. In order to tackle this problem, effective alternatives to chemical control are being experimented. With this background the present study was undertaken to identify a suitable low cost base material for development of a bio fungicide and assessment for its suitability as substrates for mass multiplication *Trichoderma* spp.

Natural rubber serum which is rich in N, P,K, and Mg is a potential natural liquid waste that could be used to formulate a low cost suitable media for the growth of *Trichoderma* spp. Possibility of natural rubber serum, *sakkara* and their combinations were investigated at laboratory scale for formulating a new liquid medium to grow *Trichoderma* spp. Media that yielded the highest spore count was selected as the best combination. It was found that *Trichoderma* did not show a good growth neither in natural rubber serum nor in *sakkara* alone. Media prepared by combining rubber serum and *sakkara* in 3: 2 ratio gave the highest mycelial growth and yield of conidia.

It was also found that mycelial growth and spore count increased with the incubation period and maximum spore count (2.04×10^7) was given at 27th day. Optimal growth and spore count was observed when the pH of media was 8.32. Combined media which showed the best performance possess with 0.89% organic carbon, 2.46 ppm nitrogen, 200.92 ppm potassium, 7.2 ppm phosphorous and 24.47 ppm magnesium.

In mass multiplication, pH of media was lower (3.51) during the initial stage and subsequently rose to 4.65. This initial low pH affected on the growth and sporulation of *Trichoderma*. Highest spore count observed in mass multiplication i.e. 3.91×10^6 was significantly lower than that of the laboratory scale experiment.

Keywords: Biofungicides, *sakkara*, Natural Rubber Serum, *Trichoderma*