

Evaluation of Fungicides against Banana Stem Rot Fungus, *Marasmiellus* sp. under *in Vitro* Condition

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Abstract: Banana (*Musa* sp) is an important fruit crop cultivated throughout the year and is the traditional mainstay of Northern Sri Lanka's livelihood. Occurrence of pests and diseases is the major constraint in banana cultivation and *Marasmiellus* stem rot is a recently reported fungal disease to banana fields in northern region. A study carried out in 2010-11 revealed that the disease was found spreading slowly among the banana growing areas in Jaffna peninsula, because of the threat imposed by this disease it should be checked at the initial stage. This *in vitro* study aims to screen locally available fungicides to develop control measures for the stem rot of banana. The fungus was isolated from the diseased banana plants and pure culture was maintained in potato dextrose agar. Five broad spectrum fungicides at two levels of concentrations as manufacture recommended level and half of the recommended level were evaluated, using poison food technique, against the radial growth of mycelia of *Marasmiellus* sp (Basidiomycetes: Agaricales: Tricholomataceae) isolated from diseased banana. It was observed that these fungicides Copper 50% (w/w) WP as copper oxychloride (Coblite), Thiram 80% (Pomarsol forte WP 80%), Captan 50%(w/w) WP (Captan), Metalaxyl 8% (w/w)+Mancozeb 64% (w/w) WP (Ridoaxyl) and Chlorothalonil 75% (w/w) WP (Max) at both concentrations inhibited mycelia growth of the fungus. All fungicides significantly differed from the control except Coblite. The highest percentage inhibition was recorded as 86.76% (11.92 mm Mean Colony Diameter (MCD)) from the manufacture recommended level of concentration (0.5g/100ml) of Metalaxyl 8% (w/w) + Mancozeb 64% (w/w) WP indicating combined effect of two compatible fungicides, followed by Chlorothalonil at both concentrations 0.15g/100ml and 0.075g/100ml were inhibited 64.09% (32.32 mm MCD) and 61.02% (35.08 mm MCD) of colony growth respectively. This investigation revealed that, Mancozeb and Metalaxyl in combination and Chlorothalonil based fungicides can be the best option for effective control of *Marasmiellus* sp. and prevent further spread of the banana stem rot from suspected areas and also best method to treat planting material at planting. However; field level investigation has to be carried out to confirm the application.

Keywords: Banana, Stem rot, Fungicides, *in vitro*, *Marasmiellus*