



Identification of Different Sugarcane Smut (*Ustilago scitaminea*) Strains in Sri Lanka

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The commercial sugarcane varieties which have been identified as resistant to sugarcane smut disease (*Ustilago scitaminea*) have shown some susceptibility to the disease in past

two years. This study investigates the existence of different strains of *Ustilago scitaminea* in sugarcane crop based on the growth pattern and colony morphology. The teliospores collected from smut whips of different sugarcane varieties in different sugarcane growing locations of Sri Lanka; Uda Walawe, Sevanagala, Pelwatte, Hingurana, Passara and Siyambalanduwa were used to isolate spores to culture them in a medium containing 0.323 μ M Streptomycin to produce spores for obtaining pure cultures. Fungi discs of 5 mm obtained from pure cultures were grown in the same medium in the middle of petri dishes in five replicates to measure radial growth daily, until they reach the edge of the Petri plates for 10 days. The growth of 29 different smut isolates was tested to find out the existence of different strains. The analysis of variance was carried out on the radial growth observed and cluster analysis on mean radial growth and radial growth rate to group the isolates with the same growth pattern. The analysis of variance showed that the growth of mycelium was significantly different among the isolates tested indicating the existence of different strains of smut fungi in commercial sugarcane plantations. The results of cluster analyses showed that there were six main groups of the 29 isolates tested at 95% dissimilarity level indicating at least six different *Ustilago scitaminea* strains causing sugarcane smut disease in Sri Lanka. This information can be used along with the other morphological and molecular characteristics, such as spore size, colony colour and DNA sequencing for identifying different smut strains.