

SCREENING OF POTENTIAL ANTAGONISTIC MICROORGANISMS AGAINST RICE BLAST

D.D. Karunarathna¹, T.D.C. Priyadarshani¹, G.D.N. Menike² and P.A.
Weerasinghe¹

¹ Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri
Lanka, Anuradhapura, Sri Lanka

² National Institute of Post-harvest Management, Anuradhapura, Sri Lanka

Rice blast caused by fungi *Magnaporthe oryzae* is one of the major rice diseases in Sri Lanka. This study was carried out with the objective of isolation of locally available antagonistic microorganisms against Rb pathogen. Characteristic symptoms showing rice leaf samples collected from the rice research field of the Faculty of Agriculture, Rajarata University of Sri Lanka were used for isolation of the pathogen. The pathogen was cultured on a plant based culture media comprised with following plant extracts: fresh leaves of rice, *Cyperus rotundus* and *Echinochloa crus-galli* in different concentrations of 25, 50, 75, and 100 gL⁻¹ and compared with Potato Dextrose Agar. Epiphytic and soil antagonistic microorganisms were isolated from rice leaves and soil samples [herbarium soil, undisturbed soil from lake bunds, old-mushroom litter, *Illuk* root (*Imperata cylindrica*), Guinea grass root (*Megathyrsus maximus*)]. Finally, *M. oryzae* growth inhibition percentage were measured. First, the isolated microorganism from infected leaf was confirmed as *M. oryzae* through visual and microscopic observations. Plant based media, which contained *Echinochloa crus-galli* leaf concentration of 50 gL⁻¹ showed the highest (5.23 cm) sporulation of the *M. oryzae*. *Aspergillus niger*, *Penicillium* sp. and two other bacterial species were isolated as the epiphytic antagonistic microorganisms. *Trichoderma* spp. which was isolated from faculty herbarium soil sample showed the highest inhibition percentages on *M. oryzae*. (78%), when compared to *Aspergillus niger*, *Penicillium* spp. and two other bacterial species. Locally available *Trichoderma* spp. had an exceptional effect *in-vitro*, as a biological control agent against *M. oryzae*.

Keywords: Biological control, *Magnaporthe oryzae*, Rice blast, *Trichoderma*