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### **Screening of soil fungi for chitinase and $\beta$ -1, 3-glucanase production**

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Plant pathogens and diseases are a major limitation to crop production worldwide. Among these fungal pathogens cause significant crop losses. Extensive use of fungicides has resulted in harmful effects to humans and the environment. It also becomes inefficient due to development of resistance among pathogens over time. Therefore, using molecular biology techniques development of genetically engineered fungi resistant plants using chitinase and glucanase encoding genes is an effective and eco-friendly method. Chitinases and glucanases degrade main cell wall components (chitin and  $\beta$ -1, 3-glucan) of pathogenic fungi. The genes encoding these enzymes can be isolated from soil fungi and can be transferred to crop plants to obtain transgenic showing resistance to fungal diseases. In this study eighty three chitinolytic and glucanolytic fungi were isolated from soil samples collected from different locations in Sri Lanka using chitin and glucan based selective media. These isolated fungi were screened for inhibitory activity against seven selected plant pathogenic fungi. Of the 83 isolates, 22 showed inhibitory activity against the pathogenic fungi. These 22 fungi included *Penicillium* sp, *Trichoderma* sp, *Aspergillus* sp and *Fusarium* sp. These 22 fungi were also screened for chitinase and glucanase activity. Enzyme activities were determined by spectroscopic method of DNS for glucose concentration at pH 5.5. *Trichoderma* species had the highest activity of both enzymes. Chitinase production was optimum after 24 h of growth for most of the isolates while glucanase production was optimum after 96 h of growth for the majority of the isolates.

Keywords: *Aspergillus*, chitinase, glucanase, *Penicillium*, *Trichoderma*

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