Isolation of Fungi Associated with Two Traditional Rice Varieties in Sri Lanka

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Rice (*Oryza sativa*) is one of the most important food crops in Sri Lanka. Local rice varieties are more amenable to organic farming practices and thus can be grown using organic cultivation systems which cause minimal damage to the environment and consumers. However, traditional rice cultivation produces low yield, which is insufficient to fulfill the consumer demand. Therefore, it is important to increase the total production which can be done through enhancement of plant growth and by reducing disease incidence and endophytic fungi of plants are used to achieve these ends. Therefore, endophytic fungal assemblages in two traditional rice varieties i.e. Suwandel and Kalu heenati were isolated in this research with a view to using them to enhance plant growth and to reduce damage caused by diseases of rice. Although endophytic fungi associated with some rice varieties have been investigated, there are no reports on endophytic fungi of traditional rice varieties in Sri Lanka. Development of an effective surface sterilization regime(s) is of utmost importance for the isolation of endophytic fungi of a plant. Leaves, stems, roots and seeds of the two rice varieties were used for isolation of fungal endophytes. The most effective surface sterilization regime for these plant parts of both rice varieties was established after testing a number of combinations. Based on levels of sterility and survival, the most effective sterilization regimes were: for leaves, washing with running tap water (RTW) for 10 min, immersing in 70% Ethanol for 1min, then immersing in 0.25% NaOCl for 15 min followed by immersing in 70% Ethanol for 30 sec; for roots washing with RTW for 10 min, immersing in 75% Ethanol for 40 sec, then immersing in 0.5% NaOCl for l5 min followed by immersing in 70% Ethanol for 30 sec; for stems, washing with RTW for 10 min, immersing in 75% Ethanol for 40 sec, then immersing in 0.25% NaOCl for 10 min followed by immersing in 70% Ethanol for 40 sec and for seeds, washing with RTW for 10 min, immersing in 75% Ethanol for 30 sec, then immersing in 1.0% NaOCl for 5 min followed by immersing in 70% Ethanol for 30 sec. Thirty five fungal endophytes from Suwandel and 31 from Kalu heenati were isolated by plating the surface sterilized plant parts separately in Malt Extract Agar and identified based on their macroscopic and microscopic features. Fungi belonging to Ascomycota were dominant, followed by Zygomycota and Basidiomycota. Among the endophytic flora, *Absidia* and *Cylindrocladium* showed highest percentage of occurrence in Suwandel and Kalu heenati respectively. The overall colonization rate of endophytes in Suwandel and Kalu heenati were found to be 80% and 73.75% respectively.