

# Plant Health 2019



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## Comparison of endophytic fungal colonization rates in newly improved rice varieties Bw367 and Bg352 in selected geographical locations of Sri Lanka.

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Rice is the staple diet in Sri Lanka and the extensive levels of agrochemicals used in rice cultivation has caused serious environmental and health problems. Therefore, various microorganisms including endophytic fungi of plants are being investigated as an alternative for agrochemicals. As endophytic fungi have the ability to enhance plant growth and control diseases, they can be used to increase crop production as well as for disease management. Thus assessing the ability and rate of colonization of a particular plant by fungal endophytes is very important. Therefore, this study was aimed at assessing the colonization rates of endophytic fungi present in two newly improved rice varieties grown in selected geographical locations across Sri Lanka with a view of utilizing them for increased productivity and disease management of the two varieties. Healthy plant samples of Bg352 and Bw367 were collected during the Maha season (January, 2019) from fields in different climatic zones of Sri Lanka i.e. fields in Anuradhapura, Kurunegala, Gampaha and Kalutara districts. Endophytic fungi were isolated from a total of 480 plant segments including leaf, stem and root pieces of the two varieties onto Malt Extract Agar (MEA) after surface sterilization using previously optimized regimes. Colonization rates (CRs) of endophytic fungi were determined and the difference in the extent of colonization by endophytes between two varieties and between districts was analyzed separately by one-way ANOVA. A total of 92 isolates (35 isolates from Bw367 and 57 from Bg352) were obtained from all plant parts of both varieties collected from the four sites. The total CRs of endophytic fungi in all plant parts of Bw367 collected from Kurunegala, Anuradhapura, Gampaha and, Kalutara were 3.3%, 11.6%, 25%, and 16.6% respectively whereas for Bg352, the CRs were 26.6%, 16.6%, 28.3% and 23.3% respectively. The analysis of results showed that there was no significant difference ( $P < 0.05$ ) in the colonization rates of endophytes between the two rice varieties nor was there a significant difference ( $P < 0.05$ ) among the selected districts of the different climatic zones indicating that endophytic fungal colonization rates in Bg352 and Bw367 was not affected by varietal difference or by climatic and associated conditions of the different locations studied.

**Key words:** rice varieties, endophytes, diversity

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