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## Comparison of endophytic fungal colonization in traditional and newly improved rice varieties from different geographical locations of Sri Lanka

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Extensive levels of agrochemicals used in rice cultivation has caused serious environmental and health problems in Sri Lanka. Therefore, safe and viable alternative strategies should be sought. As endophytic fungi (EF) associated with many plants have been reported to have the ability to enhance plant growth and also control diseases, they could be used for increased rice production and disease management. However, before embarking on such an approach, the ability and rate of colonization of a particular plant variety by EF should be assessed. Therefore, this study was aimed at assessing the colonization rates (CRs) of EF present in a newly improved (At 362) and a traditional (Suwandel) rice varieties grown in different geographical locations of Sri Lanka. Ten healthy plants of each variety were collected during the Maha season (January, 2019) from Anuradhapura, Kurunegala, Gampaha and Kalutara districts. Isolation of EF was carried out in Malt Extract Agar, using 480 segments (60 segments including leaf, stem and root of each variety from each location). The difference in the extent of colonization by EF between two varieties, among districts and between plant tissue types were analyzed separately by one-way ANOVA. A total of 112 isolates (37 from At 362 and 75 from Suwandel) belonging to 39 different fungal genera were isolated from both varieties collected from all four sites. Some of the isolates were morphologically identified using a fungal identification key as *Fusarium sp*, *Curvularia sp*, *Penicillium sp*, *Acremonium sp*, *Paecilomyces sp*, *Colletotrichum sp*, while the remaining were sterile fungi. Statistical analysis showed that CRs of endophytes between the two rice varieties differ significantly ( $P < 0.05$ ). However, there was no significant difference ( $P < 0.05$ ) in CRs of endophytic fungi in Suwandel between districts, whereas At 362 showed a significant difference ( $P < 0.05$ ) in CRs between districts. In addition, CRs among plant parts also differed significantly ( $P < 0.05$ ). In conclusion, endophytic fungal CRs varied between the two rice varieties (traditional and newly improved) and the endophytic CRs in Suwandel was not affected by climatic and associated conditions of different locations whereas that in At 362 was affected significantly.

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