

Vegetative-phase growth performance of rice (*Oryza sativa* L.) cultivated using hydroponic system

ABSTRACT

Rice (*Oryza sativa* L.) is the most important staple food for many countries including Malaysia. But the country is still relying on the import to meet its domestic demand. Though significant public resources allocated for the rice industry, rice cultivation is still perceived to be uneconomical and associated with poverty. Therefore, a hydroponic system is seen as an alternative rice cultivation system that possibly be able to overcome common problems encountered in conventional and traditional paddy cultivation such as irrigation systems, limited cultivation area, control of nutrient inputs, control of pests, and loss of community interest particularly the new generation towards paddy cultivation. This net house study which one of the objectives was conducted to examine the vegetative growth of two local rice varieties under hydroponic condition. The experiment was a split plot design with nutrient solution concentration as the main plot, and the subplot is a local rice variety consisting of low land variety TQR-8 Sri Aman and upland rice variety called as 'Tadong'. Each treatment was replicated in four plants or pots. A two-way analysis of variance (ANOVA) was performed to determine the effect of nutrient solution concentration and variety on rice growth cultivated using hydroponic system. The results revealed that the hydroponically grown rice of TQR-8 Sri Aman has greater tillering ability compared to Tadong for both NCSs. On the other hand, Tadong variety showed higher plant height than TQR-8 Sri Aman grown under hydroponic system. In addition, interaction of variety and nutrient solution concentration was significantly difference on tiller number and plant height. Further analysis should be conducted to evaluate the yield and feasible of the rice grown using hydroponic system.