Tropentag, September 14-16, 2022, hybrid conference

"Can agroecological farming feed the world?
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Performance of selected *Oryza sativa* L. variety to *Trichoderma viride* with different organic soil amendments

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Abstract

Rice (*Oryza sativa* L.) is the staple food crop cultivated on a large scale in Sri Lanka. Under the present context in Sri Lanka, it is a big challenge to provide the necessary nutrients for rice plants without using inorganic fertilisers. *Trichoderma viride* is a beneficial fungus that is reported to have several mechanisms to enhance plant growth. The research was conducted to evaluate the growth, development, reproductive and yield performance of rice plants grown on soil containing *Trichoderma viride* mixed with some selected organic amendments. The growth, development, reproductive, and yield parameters of rice plants were examined and recorded. Ld 253, a short duration (85 days), improved rice variety, which is cultivated island wide due to the attractive quality attributes was tested with three different biochar combinations and two different biochar application rates, viz. 00 kg ha^{-1} and 5,000 kg ha^{-1}. T1– Guinea grass (*Megathyrsus maximus*) + *Trichoderma viride*, T2– Gliricidia (*Gliricidia sepium*) biochar + *Trichoderma viride*, T3– Paddy husk biochar+ *Trichoderma viride*, T0– Control (No soil amendment+ No *Trichoderma viride*). The experiment was arranged in a randomised complete block design (RCBD) with three replicates. Plant growth and development parameters, leaf colour code, seeds per bush, and yield per bush were recorded and analysed using ANOVA. All Trichoderma viride treated organic amendments were significantly higher than the control treatment, whereas the two different application rates were not significantly different. Results concluded *Trichoderma viride* can be used as a potential growth-promoting agent in rice cultivation. *Trichoderma viride* treated biochar in 500 kg ha^{-1} application rate is recommended as an organic amendment to enhance the performance of Ld 253 rice variety due to the availability and the cost-effectiveness of guinea grass (*Megathyrsus maximus*) biochar can be suggested in Sri Lanka.

Keywords: Biochar, organic amendment, pyrolysis, rice (*Oryza sativa* L.), *Trichoderma viride*

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