Performance of Rice (*Oryza sativa L.*) Grown on Soil Mixed With *Trichoderma viride* Added Organic Amendments

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Introduction

- *Trichoderma viride* is a beneficial fungus that is reported to have several mechanisms to enhance plant growth
- Biochar is a fine-grained solid material that is used to improve soil conditions

Objectives

General Objective

- Evaluate the growth, development, reproductive, and yield performance of rice (*Oryza sativa* L.) under *Trichoderma viride* with different soil amendments

Specific Objectives

- To identify the nutrient retain capability with different kinds of soil amendments
- To identify the capability to reduce fungal diseases from *Trichoderma viride*

Methodology

Biochar was made by pyrolysis method

Pyrolysis unit

Guinea grass biochar

Gliricidia biochar

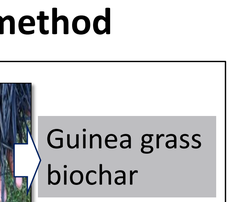
Rice husk biochar

Inoculation of *Trichoderma viride* to biochar

Trichoderma viride cultures

Trichoderma viride broth

Inoculation Biochar Broth (1:1)



Trichoderma viride inoculated biochar

Tested treatments and application rates

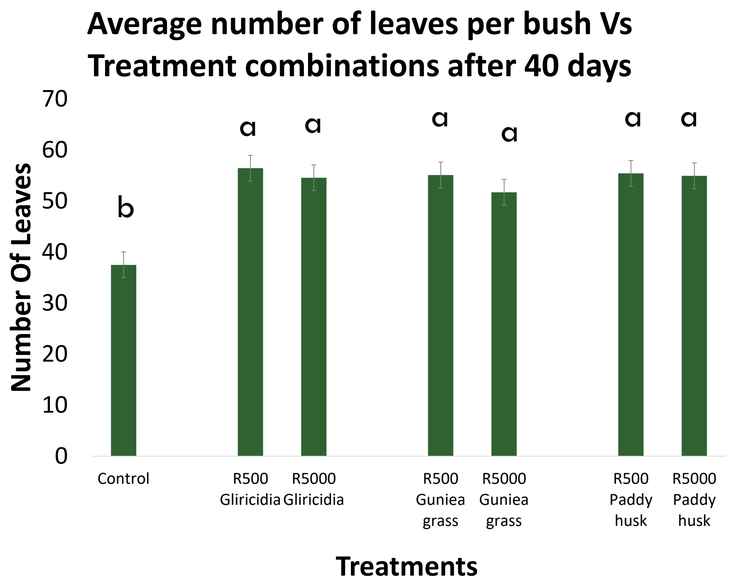
	Treatments	Application Rates (kg/ha)
T0	Control (No organic amendment)	-
T1	Guinea grass biochar + Trichoderma viride	500 5000
T2	Gliricidia biochar + Trichoderma viride	500 5000
T3	Paddy husk biochar + Trichoderma viride	500 5000

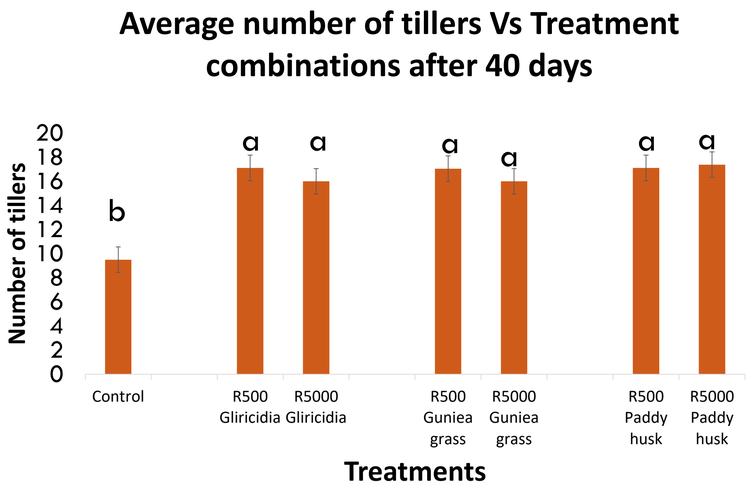
Experiment design

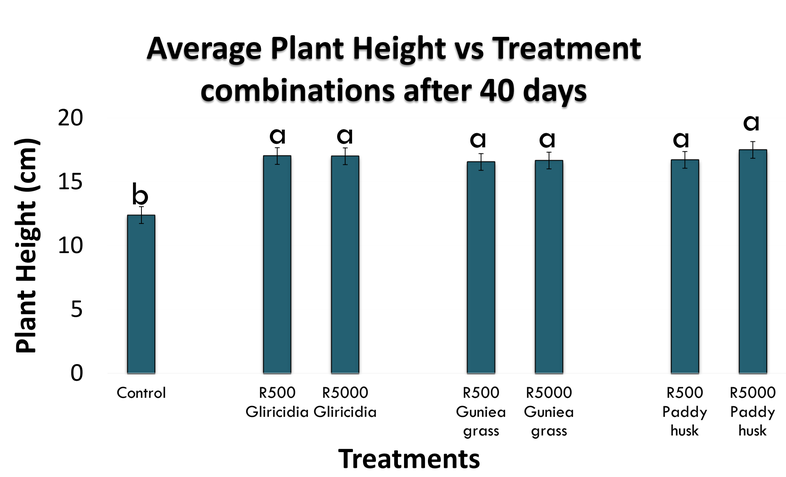
- Ld. 253 rice variety was tested as a pot experiment
- Compost wild sunflower (*Helianthus annuus)* were used only organic fertilizers for rice plant
- Experiment design - Randomized Complete Block Design (RCBD) with three replicates

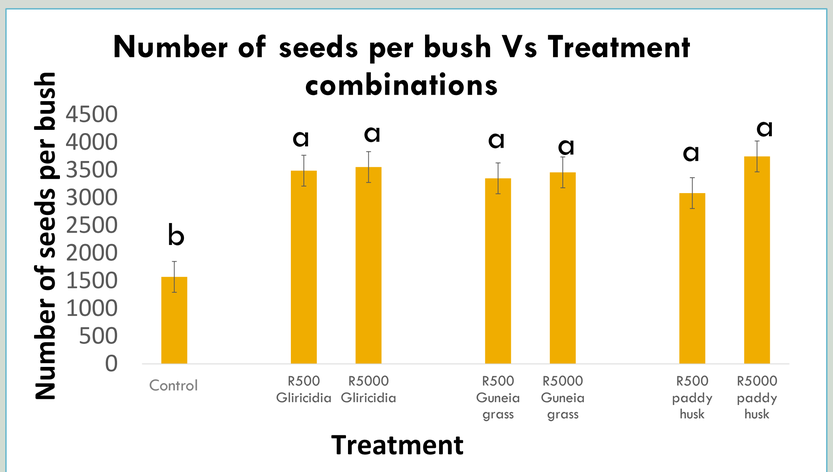
Data Recording

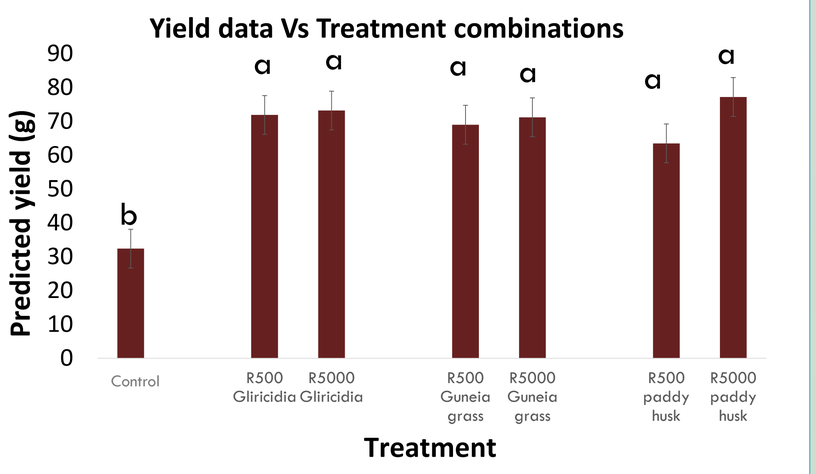
Results and Discussion











Conclusion

- The performance of all *Trichoderma viride* treated organic amendments was significantly higher than the control treatment, whereas the two different application rates were not significantly different
- Significantly higher growth, development, reproductive and yield performance were observed with all treatments over the control in both application rates
- Predicted yield suggested that any treated organic amendment can be used for enhancing rice farming
- Beneficial fungi (*Trichoderma viride*) can be used as a potential growth-promoting agent in rice cultivation
- non-significant difference between the two application rates, 500kg/ha can be recommended as the best rate of soil amendment for rice

Future Perspectives

- Identify the performance of rice with other freely available, cost-effective organic amendments mixed with different *Trichoderma* spp.
- Identify the best treatment combination for rice (*Oryza sativa* L.)

Acknowledgement

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