

## Effects of Application of Rice Husk Charcoal-Coated Urea and Rice Straw Compost on Growth, Yield, and Properties of Lowland Rice

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**Abstract :** Rice is the staple food of Sri Lankans thus; rice cultivation is the major agricultural activity of the country. The application of inorganic fertilizer has become a burden to the country. The excessive application of organic and inorganic fertilizers can potentially lead to deterioration of the quality of water. In mixing both urea and rice husk charcoal and rice straw compost in soils causes a slow release of nitrogen fertilizer, thus reducing the cost of importations of nitrogen based fertilizers per unit area of cultivation. Objective of this study was to evaluate rice husk charcoal coated urea as a slow releasing fertilizer and compare the total N,P, K, organic matter in soil and yield of rice production. Five treatments were used for twenty pots (pot size 30 cm diameter and 45 cm height) each replicated four times as: inorganic fertilizer only (Urea, TSP and MOP) (Treatment 1); rice husk charcoal coated urea, TSP and MOP (Treatment 2); inorganic fertilizer (Urea, TSP and MOP) with rice straw compost only (Treatment 3); rice husk charcoal urea, TSP and MOP with rice straw compost (Treatment 4); and no fertilizer as the control (Treatment 5). Rice grain yield was significantly higher in treatment 4 where rice husk charcoal coated urea, TSP and MOP with rice straw compost. The lowest yield was observed in control (treatment 5). The lower the value of the nitrogen to phosphorous ratio in soil, it indicates higher uptake of phosphorous. Charcoal can be used as a soil amendment and organic fertilizer, but adjustment of pH was required at high application rates. K content of soil of treatment 3 and 4 were the highest with compared to the treatment 1. Rice husk charcoal coated urea can potentially be used as a slow releasing nitrogen fertilizer.

**Keywords :** charcoal, rice husk, nitrogen to phosphorous ratio, soil amendment

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