



NUTRITIONAL PROPERTIES AND HYDROLYZING RATES OF RICE GROWN WITH BIOFILM BIO-FERTILIZER (BFBF)

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Rice (*Oryza sativa* L.) is the staple food for a larger proportion of the world population. Excessive use of chemical fertilizer (CF) in rice cultivation, especially urea is one of the causes of global warming and ground water pollution. Biofilm Biofertilizer (BFBF) has been developed as an environmentally friendly alternative for reducing excessive use of CF in rice cultivation. This study compared the nutritional properties and hydrolyzing rates of the rice grown with BFBF and CF. Rice samples of Bg94/1 grown with six fertilizer treatments: different ratios of BFBF and CF, T1–100% CF, T2–80% CF, T3–80% CF+BFBF, T4–65% CF, T5–65% CF+BFBF and T6–Control: normal soil were analyzed. All the analysis was carried out in triplicates, and data were analyzed by using one-way ANOVA. Based on the results, moisture, ash, crude fat contents among the treatments varied from 10.2% (T4) to 12% (T1), 2.1% (T1) to 5.1% (T4), and 1.0% (T1) to 2.7% (T4), respectively. Protein content was in the range between 5.6% (T2) to 7.3% (T4). Available carbohydrate content varied between 68.3% (T4) to 74.8% (T1). The mineral profile of rice showed that no harmful trace elements exceeded the acceptable level. A significantly higher level of Zn was observed in T5. Total dietary fibre (TDF) content ranged between 6.8 to 3.1g/100 g belonging to T2 and T1, respectively. Moreover, when the rice samples were hydrolyzed, the lowest maltose releasing rate was observed in T4. The results of the present analysis revealed that rice grown with 65% CF+BFBF have satisfactory level of macro and micronutrient composition. Protein, TDF and zinc content in rice grown with 65% CF+BFBF treatment were significantly higher than those in the rice grown with 100% CF and the control sample. Therefore, it could be concluded that the 65% CF+BFBF is an eco-friendly and economically viable recommendation for rice farming in Sri Lanka.

Keywords: Biofilm Biofertilizers, Chemical fertilizers, Nutritional properties, *Oryza sativa*, Sustainable agriculture

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