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Performance of rice (*Oryza sativa* L.) plants with different traditional organic formulations in Sri Lanka

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Abstract

Although inorganic fertilisers are the most popular among Sri Lankan rice farmers, several drawbacks such as destruction of beneficial microorganisms, pollution of drinking water and reduction of soil health have been reported. Therefore, compost has been recommended to apply for paddy fields as an organic fertiliser. As compost does not release all nutrients as plant requires, alternative nutrient supplements have to be used. One such alternative is the traditional organic formulations obtained from the fermentation process of different organic materials prepared with low cost input materials. A pot experiment was conducted to evaluate the effectiveness of traditional organic formulations with rice (*Oryza sativa* L.). Two rice varieties namely Bg 366 (improved variety) and Masuran (traditional variety) were used to evaluate the vegetative, reproductive and yield characteristics of rice plants. Treatments were arranged in a Randomised Completely Block Design (RCBD) with four treatments and three replicates. Compost (T1), Jeevamrutham - an Indian traditional organic formulation (T2), fish tonic (T3) and a combination of fish tonic with fish powder (T4), were tested with no fertiliser (T0) for four months. Vegetative parameters viz. number of leaves per bush, plant height, number of tillers per bush, leaf colour; reproductive parameters viz. number of panicles per bush, grains per panicle, panicle length; and yield parameters viz. thousand seed weight and yield per bush were recorded in both rice varieties. Data were analysed by analysis of variance using SAS 9.4 software. Results concluded that the yield of the compost treatment (T1) alone was significantly higher than other treatments with Bg 366 while all the other treatments were not significantly different in yield. Masuran did not show a significant difference in the yield. It was concluded that compost was better than tested traditional organic formulations, however the effect of compost+organic formulations has to be field tested.

Keywords: Fish tonic, Jeevamrutham, rice (*Oryza sativa* L.), sustainability, traditional organic formulations

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