Formulation of Organic Liquid Fertilizers and their Effects on Germination of Selected Seeds and Growth and Yield of Chilli (*Capsicum frutescens* L.)

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The present study was aimed to formulate organic liquid fertilizers using banana pseudostem and to assess their potential use in the germination of selected seeds (i.e., chilli, curry chilli, lettuce and water spinach), and growth and yield of chilli (*Capsicum frutescens* L.), in combination with either organic (cattle manure-CM) or inorganic fertilizers (IF). The experiment was conducted at Department of Agricultural Chemistry, University of Jaffna during January to June 2020. The formulations were banana pseudostems extract with decomposed solution (banana formulation- BF) and banana pseudostem extract with 2% Panchagavya (BP). Nutrient content (NPK) of formulations were analysed. In the germination test, control (distilled water T1), was compared with BF (T2) and BP (T3). The pot experiment was conducted in a complete randomized design with six treatments and four replicates. The treatments were T1 (100% IF), T2 (100% CM), T3 (50% IF + 50% BF), T4 (50% CM + 50% BF), T5 (50% IF + 50% BP) and T6 (50% CM + 50% BP). The liquid formulations were applied at the rate of 250 Lha^{-1}. Growth parameters namely number of leaves and plant height and yield were measured. Data were statistically analysed using ANOVA and mean separation was done using DMRT. Results of nutrient analysis of formulations indicate that BF had 365 ppm N, 1320 ppm P and 8097 ppm K, while BP had 601ppm N, 1930 ppm P and 8619 ppm K. The results indicated that the highest germination percentage was recorded in T2 (BF) in all selected seeds. Vigour index was higher in T2 (BF) and T3 (BP) treatments than the control. Significant differences were only observed among treatments in plant height of chilli at the second and sixth week. However number of leaves showed significant differences during the second, fourth and sixth week. Among the treatments, the highest yield was recorded in T6. Moreover, all foliar treatments T3, T4, T5 and T6 performed better than T1. By substituting 50% of inorganic fertilizer with banana liquid formulations, the yield of chilli was increased by 46%.

Keywords: Banana formulation, Banana pseudostem extract, *Capsicum frutescens*, Panchagavya