THE EFFECT OF VERMICOMPOST AND VERMIWASH ON GROWTH AND YIELD OF BLACK GRAM *(Vigna mungo)*

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ABSTRACT

Organic farming is a cultivation technique to avoid the use of chemical fertilizer, pesticides and other synthetic substances. The aim of this study was to investigate the effect of vermicomposting and vermiwash on growth and yield of black gram. The experiment was conducted at the field of Puttlam District. The pot experiment was conducted by using black gram varieties: *Vigna mungo MI 1*, *MIBG 3*, *MIBG 4*, and *Anuradha* recommended by the Department of Agriculture, (DOA) Sri Lanka. Six different concentrations of varmicompost (VC) (T1-25% VC, T2-50% VC, T3-75% VC, T4-100% VC and vermiwash (VW) (T5-25% VW, T6 -50% VW, T7-75% VW, T8-100%, were tested along with inorganic fertilizer recommendation by DOA and control. All the treatments were arranged according to a completely randomized design with six treatments and five replicates. Vegetative data and yield components were evaluated in response to different applications of VC and VW by using Minitab 17 statistical software. Vermicompost application significantly improved growth and yield parameters of black gram varieties compared to the control and chemical treatments ($P<0.05$). The highest plant height (39.70±2.22 cm by *MI*), number of leaves (30.60±1.34 by *MI* and *Anuradha*), and number of branches (10.20±0.44 by *MI* and *Anuradha*) were observed under 100% vermicompost. The lowest days to flowering (30.20±0.44 by *MIBG 3*, *MIBG 4*, and *Anuradha*) and the highest number of pods per plant (20.00±1.41 by *MIBG 3* and *MIBG 4*) were also recorded under 100% vermicompost, showing significant differences from control and chemical applications. Vermiwash application also significantly improved growth and yield parameters of black gram varieties. The highest plant height (29.76±0.55 cm by *MI*), number of leaves (20.40±1.34 by *Anuradha*), and number of branches (6.60±0.89 by *MI*) were observed under 100% vermiwash. The lowest days to flowering (31.80±0.44 by *MIBG 3*, *MIBG 4*) and the highest number of pods per plant (10.80±0.83 by *MIBG 3*) were also recorded under 100% vermiwash, showing significant differences from control and chemical applications. There is a significant interaction effect of fertilizer concentration and variety on Plant height, days to flowering, number of pods per plant and pod length. Number of leaves, number of main branches and pod length mainly affected by only fertilizer concentration. Seeds per Pod mainly affected by fertilizer concentration and variety effect only.

Key words: Vermicompost, Vermiwash, Black gram

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