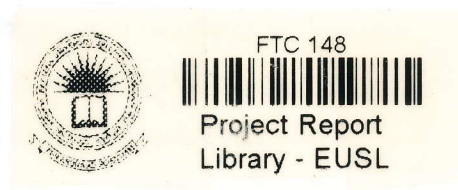


**EFFECT OF VERMICOMPOST ON GROWTH AND YIELD OF
DIFFERENT COWPEA VARIETIES (*Vigna unguiculata*)**



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ABSTRACT

The potential of vermicompost, an organic biofertilizer made from earthworm activity, to improve soil fertility and crop productivity has drawn considerable interest. This study investigates the effect of vermicompost on the growth and yield of different cowpea varieties. (*Vigna unguiculata*). A pot experiment was conducted with varying levels of vermicompost application, and its impact was compared to chemical fertilization methods. This experiment was laid out in Complete Randomized Design (CRD) with replicates having the following treatments: T1 – Control (1kg soil alone), T2- 25% vermicompost + 75% soil (250g vermicompost + 750g soil), T3- 50% vermicompost + 50% soil (500g vermicompost + 500g soil), T4- 75% vermicompost + 25% soil (750g vermicompost + 250g soil), T5- 100% vermicompost (1 kg vermicompost alone) and T6- chemical fertilizer.

Vermicompost application significantly improved growth and yield parameters of cowpea varieties compared to the control and chemical treatment ($p < 0.05$). The highest plant height (50.94 ± 3.00 cm by Bombay), number of leaves (39.00 ± 1.22 by MI 35), number of branches (14.20 ± 1.48 by MI 35), number of nodes in main stem (20.00 ± 2.45 by MI 35), Leaf area index (79.26 ± 14.97 cm² by Bombay) were observed under 100% vermicompost. The lowest days to flowering (34.80 ± 0.83 by Waruni and Dawala), the lowest days to first mature pods (47.40 ± 1.14 by Waruni), the longest plant length (16.24 ± 0.68 cm by ANKCP 2), the highest number of seeds per pods (11.00 ± 1.58 by ANKCP 2), the highest number of pods per plant (4.40 ± 1.14 by Waruni), the highest seed length (0.72 ± 0.08 mm by Bombay), and highest dry pod weight (2.60 ± 0.10 g by Bombay) were also recorded under 100% vermicompost, showing significant differences from control and chemical applications.

There is a significant effect of fertilizer concentration and variety on plant height, number of leaves, number of branches, number of nodes in main stem, leaf area index, days to flowering, days to first mature pods, the plant length, seeds per pods, pods per plant and seed length mainly affected by only fertilizer concentration. These findings suggest that vermicompost can be a useful tool for improving the quality and yield of different cowpea varieties in organic farming.

Key words- Earthworm, Growth and yield, Inorganic fertilizer, Organic biofertilizer, Vermicompost

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