GROWTH AND YIELD PERFORMANCE OF GREEN CAPSICUM (*Capsicum annuum* L.) AS INFLUENCED BY VERMICOMPOST APPLICATION GROWN AT ROOFTOP OF CHANDPUR AREA

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Abstract

A pot experiment was conducted during rabi season during 2020-21 at a rooftop of Chandpur 150 MW Combined Cycle Power Plant (CCPP) Area in Chandpur Sadar upazila under Chandpur district to study the impact of different dosages of vermicompost (VC) on the growth and yield parameters of green capsicum plants (*Capsicum annuum* L.). It was laid out in a randomized complete block design (RCBD) with three replications each of six treatments viz. T1: 0 ton VC ha^{-1} (control), T2: 2.5 ton VC ha^{-1}, T3: 5 ton VC ha^{-1}, T4: 7.5 ton VC ha^{-1}, T5: 10 ton VC ha^{-1}, and T6:15 ton VC ha^{-1}. Results revealed that maximum plant height (38.53 cm), number of leaf $plant^{-1}$ (80), and highest number of branches $plant^{-1}$ (6) were recorded in T5 followed by T3. The highest values for rest of the growth and yield parameters were found from the plant receiving VC at the rate of 5 ton ha^{-1} (T3), such as, longest leaf per plant (12.84 cm), highest number of branches $plant^{-1}$ (6), maximum girth (3.53 cm), maximum number of fruits $plant^{-1}$(7), average fruit weight (44.75 g $fruit^{-1}$), maximum weight of fresh (320.28 g fruits $plant^{-1}$) and dry (4.43 g fruits $plant^{-1}$); and maximum total fresh (109.40 g) and dry weight (21.03 g) of plants. Highest fruit length (18.97 cm) and diameter of fruit (7.30 cm) were recorded in T5 and T4, respectively. Almost all of the growth and yield parameters were observed lowest in control (T1). Study indicates that supreme dose of VC 15 ton ha^{-1} in T6 yielded lower performance compare to 10 and 5 ton VC ha^{-1}. Considering the overall performance, it may be concluded that vegetative growth and yielding capacity of green capsicum plants can be boosted up by applying vermicompost at the rate of 10 ton ha^{-1} and 5 ton ha^{-1}, respectively. This new information will be beneficial for growers, researcher and relevant workers.

***Key words*:** Capsicum; Vermicompost; Growth; Yield.

INTRODUCTION

Sweet pepper (*Capsicum annuum* L.) which belongs to the Solanaceae family is a dicotyledonous flowering plant (Knapp *et al*. 2004). It is popularly known as 'king of all spices'. There are many different varieties of peppers ranging from 30 to 90 cm tall. The five domesticated species of chili peppers are *Capsicum annuum*, *Capsicum frutescens*, *Capsicum chinense*, *Capsicum pubescens* and *Capsicum baccatum*. Capsicum offers a number of nutritional values. Green capsicums are rich in vitamin C which has strong antioxidant that strengthens natural immunity to diseases and vitamin A which is a fat soluble vitamin and an important antioxidant help to decrease the health hazards caused by free radicals (Diaz-Laviada 2010). They are also a source of vitamin B6, folic acid, beta-carotene and fiber. Capsicum has been known as a part of human diet as spice, condiments and vegetables since the commencing of civilization. Although capsicum is the most important summer crop of temperate regions, now a days efforts are being made to grow sweet pepper in Bangladesh (Paul 2009). According to BBS (Bangladesh Bureau of Statistics) report of 2019, annual production of capsicum in Bangladesh was 11 M ton covering an area of 8 acres of land during the years 2018-2019 (BBS 2020).

The "Green Revolution" of 1960s has promoted the increased use of chemical fertilizers tremendously which has undoubtedly boosted up the crop productivity many folds, but the continuous and imbalanced application of these fertilizers has also produced detrimental effects on soil health and the environment. Besides, the use of industrial fertilizers in agricultural production is expensive for majority of the farmers who are mostly marginal and small, and they do not apply the recommended dose of fertilizers (van Diepeningen 2006). In the above scenario, one of the possible options of reducing the use of chemical fertilizer could be recycling of organic wastes. Composting has been used as a means of recycling organic matter back into the soil to improve soil structure and fertility which is an environmental friendly method. Traditional composting of organic wastes has been known for years, but new methods of thermophilic composting have become much more common in organic waste treatment. One such composting technique is vermicomposting.

Vermicomposting is a decomposition process that involves the joint action of earthworms and microorganisms to transform organic residues into a secondary product named vermicompost, which can be used as manure for crop production. Vermicompost is a slow release fertilizer and is rich with essential plant nutrients produced by the earthworms' digestion of organic wastages (e.g. food waste, horticultural waste, poultry droppings and food industry sludge) which contains higher nutritional value than traditional composts (Huang *et al.* 2014, Lalander *et al*. 2015). It is finely divided peat-like materials with low C: N ratio which has been shown to have high levels of total and available nitrogen, phosphorous, potassium (NPK) and micro nutrients, such as Zinc (Zn) and Manganese (Mn), microbial and enzyme activities and growth (Chaoui *et al.* 2003, Pariari and Khan 2013). It improves the physical, chemical and biological characteristics of soil that favour better plant growth. Vermicompost reduces the irrigation requirement of soil as it has high water holding capacity and high soil porosity compared to conventional compost due to its humus content (Chaudhuri *et al.* 2016).

It has also been reported that the application of vermicompost significantly suppresses root pests via the modulation of soil properties and plant defenses, particularly for susceptible plant (Xiao *et al.* 2016) and helps in the production of healthier plants with better resistance towards pests and diseases (Liu *et al*. 2019). Releasing of nutritional elements according to plants requirement stimulates plant growth even with small amount of humic acid in the vermicompost (Adhikary 2012).

Vermicompost has been scientifically proved as miracle plant growth enhancer (Chaoui *et al*. 2003). A number of experiments are available in the literature on organic farming of vegetable crops, viz. tomato (Arancon *et al.* 2002), cucumber (Sallaku *et al*. 2009), okra (Ansari and Sukhrai 2010), chinese cabbage (Wang *et al.* 2010), coriander (Ravimycin 2016), spinach (Islam *et al.* 2020), strawberry (Rahman *et al.* 2021), lettuce (Chowdhury and Rahman 2021) and so on. But, scanty information is available on the cultivation of green capsicum using vermicompost under Bangladesh edaphic conditions. Farmers' interest also increasing day by day to cultivate capsicum in the field condition. Yet, this rooftop gardening of capsicum in the country has been popularizing in the recent years. Keeping the above facts in mind, a rooftop pot experiment was carried out with green capsicum using vermicompost in Chandpur area.

The objectives of this experiment were:

(i) to evaluate the effects of different doses of vermicompost on the growth and yield of green capsicum plants grown at rooftop and to generate information for the capsicum growers and relevant personnel and

(ii) to minimize the production cost of capsicum to encourage the small scale farmers and also to make beneficial to the producer of vermicompost.

METERIAL AND METHODS

Collection of soil sample, vermicompost and seedlings

Samples (0 to 15 cm depth) were collected from selected garden land of Chandpur 150 MW Combined Cycle Power Plant (CCPP) area in Chandpur Sadar Upazila under Chandpur district of Bangladesh. The area is situated at 23^o 22′ 23″ N latitude and 90^o 66′ 92″ E longitude. The samples were air-dried, grounded by using a wooden hammer and sieved through a 3 mm sieve. The soil is slightly acidic, pH 6.5 (1:2.5 w/v H_2O), organic matter (1.71-3.40%) with silty loamy texture (BARC 2018). Vermicompost and three types of inorganic fertilizers, viz. urea, TSP and MoP for basal application (20-15-30 kg ha-1) were collected from local market. Seedlings (21-day old) were collected from the Chandpur Police Line nursery. This study was conducted from mid-November 2020 to March 2021 on a rooftop of Chandpur 150 MW Combined Cycle Power Plant area, Balirmath in Chandpur Sadar Upazila under Chandpur district of Bangladesh.

Pot experiment

The experiment was laid out in a randomized completely block design (RCBD) having three replications. There were used six treatments in the experiment, *viz.* T_1: Control (VC 0-ton ha^{-1}), T_2 (VC 2.5-ton ha^{-1}), T_3 (VC 5-ton ha^{-1}), T_4 (VC 7.5-ton ha^{-1}), T_5 (VC 10-ton ha^{-1}) and T_6 (VC 15-ton ha^{-1}).

Fig. 1. A pictorial view of the experiment. First pot at right side is a control treatment (T_1) compared with T_3 (5-ton ha^{-1}) and T_5 (10-ton ha^{-1}) treatment plants shown in the upper part of the photographs.

Before transplanting the seedlings into the pot, these were kept in sunlight for 5 days in the research area. Ten kg capacity plastic pot was filled with 8 kg of air-dried soil keeping a drainage hole at the bottom. Urea, TSP and MoP fertilizers were applied at the ratio of 20:15:25 kg ha-1 as basal dose. One bell pepper plant was transplanted in each pot. At the beginning stage, the plants were irrigated daily and few days later it maintained twice or according to the moisture requirement of the soil. The neem (*Azadirachta indica*) extract was applied to the plants at an interval of 10 days after transplanting through foliar application for pest control. A wooden stick was tied with the main stem of each capsicum plant to support the plant for straight standing. After 30 days of transplanting, the terminal buds were removed from all the plants to get sprouting of branches as per the traditional agricultural practices. The growth and yield parameters, such as (a) height, (b) number of leaf, (c) longest leaf, (d) leaf area, (e) number of branches, (f) girth, (g) number of fruits, (h) fresh and dry weight of a fruit, (i) length and diameter of fruit (j) fresh and dry weight of root, shoot and leaf etc. were evaluated.

Harvesting

The plants (105 - day old) were harvested as root, shoot, leaf and fruit. Mature fruits were harvested at 80-105 days after transplanting or three to six weeks after flowering. The roots were washed with tap water and finally with distilled water to remove any adhering particles on the root surface. Then the roots were wrapped with soft tissue paper. After cleaning, fresh weight of root, shoot leaf and fruits were recorded. Then, the samples were air-dried at room temperature and finally oven-dried at 65°C for 48 hours. The dry weight of the samples was recorded and then grounded with a mechanical grinder and stored in plastic containers. Statistical analyses of the data were carried out following One-Way ANOVA using the Tukey test to estimate the significant difference among the treatments using Minitab 19.

RESULTS AND DISCUSSION

Plant height

Before application of vermicompost in pots, the average plant height was 2.5 cm initially. After incorporation of VC in different rates of the treatments, the significant increase ($p < 0.05$) in the plant height was observed in compare to control. Analysis of the results demonstrated that the tallest plant (38.53 cm) was recorded at maturity stage of capsicum in T_5 where 10-ton ha^{-1} vermicompost was applied followed by T_3, T_2, T_4, T_6 and $T_{1,}$ respectively (Table 1). This enhanced growth parameter of plant height obtained due to vermicompost acted as a good source of organic fertilizer which supplied favourable nutrients to the capsicum plant and would have improved the soil properties. This is in agreement with Pariari and Khan (2013) who found better plant height of capsicum with the integrated nutrient management of chilli (*Capsicum annum* L.*)* in Gangetic alluvial plains.

Most similar result was achieved in a study by Arancon *et al.* (2002) who observed that the growth of field peppers increased significantly when vermicompost was applied to field plots at the rates of 10-ton ha^{-1} compared with those receiving equivalent amounts of inorganic fertilizer.

Table 1. Effects of different doses of vermicompost on the height (cm) of green capsicum plants.

Treatments	Days after transplanting						
	15d	**30d**	**45d**	**60d**	**75d**	**90d**	**105d**
T_1:Control(VC0)	7.63^a	14.40^a	21.50^a	24.33^d	24.73^e	25.16^f	25.23^f
T_2:$VC_{2.5}$-ton ha^{-1}	6.50^c	10.40^c	15.03^c	24.33^d	27.86^d	28.60^d	28.76^d
T_3:VC_5- ton ha^{-1}	6.96^{bc}	12.16^b	19.00^b	30.96^b	33.83^b	35.10^b	35.13^b
T_4:$VC_{7.5}$-ton ha^{-1}	7.10^b	10.90^c	14.33^c	25.30^c	29.23^c	29.86^c	29.93^c
T_5:VC_{10} -ton ha^{-1}	7.03^b	12.66^b	19.50^b	33.03^a	37.40^a	38.36^a	38.53^a
T_6:VC_{15}- ton ha^{-1}	7.90^a	12.40^b	15.26^c	23.06^e	24.76^e	26.30^e	26.33^e

Values followed by different letters are significantly different at P≤0.05 according to Tukey's multiple range test (Tukey's test).

Number of leaf

The results of the number of leaves produced per plant at 15 days interval are presented in Table 2. It was observed that in the initial stage the variation in the number of leaves between the treated pots and control were not great, rather the control group showed much more leaves than the treated groups up to

30 days. After 30 days, the leaves showed pronounced growth. It was found during the study that the T_2 (VC 2.5 ton ha^{-1}) and T_5 (VC 10 ton ha^{-1}) treatments contributed maximum number of leaves (80 leaves $plant^{-1}$) during 75-90 days of growth. After 90 days, leaf number slightly decreased due to defoliation. At harvesting, T_2 (79 leaves $plant^{-1}$) produced the highest number of leaves followed by T5 (VC 10 ton ha^{-1}) and lowest with control (13 leaves $plant^{-1}$). Similar observation was reported by Adiloglu *et al.* (2018) who reported that significant rise in the plant width, the number of leaves, leaf size, leaf width, and the plant fresh weight was observed upon the increasing doses of vermicompost application in lettuce cultivation.

Table 2. Effects of different doses of vermicompost on the number of leaf of green capsicum plants.

Treatments	Days after transplanting						
	15d	**30d**	**45d**	**60d**	**75d**	**90d**	**105d**
T_1:Control(VC_0)	14^a	24^a	31^{ab}	30^d	15^d	14^d	13^e
T_2:$VC_{2.5}$-ton ha^{-1}	12a	16^b	36^a	70^a	80^a	80^a	79^a
T_3:VC_5- ton ha^{-1}	13a	17^b	27^b	49^c	56^c	60^c	57^c
T_4:$VC_{7.5}$-ton ha^{-1}	13a	13^b	26^b	46^c	62^c	71^b	69^b
T_5:VC_{10}- ton ha^{-1}	13a	15^b	29^{ab}	62^{ab}	71^b	80^a	77^a
T_6:VC_{15}- ton ha^{-1}	12a	16^b	26^b	52^{bc}	61^c	56^c	49^d

Values followed by different letters are significantly different at $P \leq 0.05$ according to Tukey's multiple range test (Tukey's test).

Leaf area

The highest leaf area, 87.68 cm^2 was recorded at maturity stage of capsicum plants in the T_3 followed by T_5 (Table 3). Based on superiority, in case of leaf area, the treatments could be arranged in the following sequence of $T_3 > T_5 > T_1 > T_4 > T_2 > T_6$. However, maximum leaf area was observed in 5-ton ha^1 (T_3). The influence of vermicompost is clear on the leaf area increment of plant and this finding are in agreement to the study of rice–legume of Jeyabal and Kuppuswarmy (2001). Vermicompost is a good source of organic matter and improves the physico-chemical properties of soil and thereby results in the highest leaf area of capsicum which showed similarity with the present study. Another study conducted by Rahman *et al.* (2021) who demonstrated that application of vermicompost at the rate of 25-ton ha^{-1} gave higher leaf area in strawberry plants.

Table 3. Effects of different doses of vermicompost on the leaf area (cm^2 $plant^{-1}$) of green capsicum plants.

Treatments	Days after transplanting						
	15d	**30d**	**45d**	**60d**	**75d**	**90d**	**105d**
T_1:Control(VC_0)	20.47^a	33.91^a	41.17^c	61.65^c	64.81^c	65.20^c	65.71^c
T_2:$VC_{2.5}$-ton ha^{-1}	15.78^d	24.09^f	30.78^f	39.20^e	48.81^e	54.21^f	55.07^e
T_3:VC_5-ton ha^{-1}	17.93^b	30.87^d	51.02^a	65.08^b	83.48^a	87.12^a	87.68^a
T_4:$VC_{7.5}$-ton ha^{-1}	16.73^c	25.22^e	35.67^d	48.19^d	54.93^d	57.71^d	57.97^d
T_5:VC_{10}- ton ha^{-1}	17.08^c	32.71^b	47.76^b	67.70^b	69.69^b	69.84^b	70.20^b
T_6:VC_{15}-ton ha^{-1}	17.27^c	31.57^c	32.12^e	47.66^e	55.08^d	52.22^e	52.64^f

Values followed by different letters are significantly different at $P \leq 0.05$ according to Tukey's multiple range test (Tukey's test).

Number of branches and girth

The effects of vermicompost on the number of branches emerged from main stem and the girth of green capsicum plants were investigated on the day of 60 (Table 4). During this experimental period, the number of branches was increased significantly ($p < 0.05$) in all the treated plants when compared to the control at the end of the investigation. The results showed that it produced the highest number of branches (6) in T_3 (VC 5-ton ha^{-1}), but no significant difference with T_5 (VC 0-ton ha-^{1}) was observed. The lowest number of branches (2) was recorded in control (T_1) treatment. Results are in agreement with Baloch *et al*. (2008). In their study they reported that organic fertilizer contains macro and micro nutrients along with NPK which provide nutrients and significantly affected the number of branches per plant.

Table 4. Effects of different doses of vermicompost on the number of branches and girth of green capsicum plants.

Treatments	Number of branches $plant^{-1}$				Girth (cm $plant^{-1}$)			
	60d	75d	90d	120d	60d	75d	90d	120d
T_1:Control(VC_0)	1^{b}	1^{b}	2^{c}	2^{c}	2.03^{d}	2.33^{d}	2.37^{d}	2.37^{e}
T_2:$VC_{2.5}$-ton ha^{-1}	2^{ab}	3^{ab}	3^{bc}	5^{ab}	2.07^{cd}	2.36^{d}	2.86^{c}	2.90^{c}
T_3:VC_5 -ton ha^{-1}	3^{ab}	4^{a}	5^{ab}	6^{a}	3.17^{a}	3.20^{a}	3.50^{a}	3.53^{a}
T_4:$VC_{7.5}$-ton ha^{-1}	2^{ab}	3^{ab}	3^{bc}	4^{abc}	2.25^{c}	2.56^{c}	2.86^{c}	2.94^{c}
T_5:VC_{10}- ton ha^{-1}	4^{a}	5^{a}	6^{a}	6^{a}	2.65^{b}	2.86^{b}	3.13^{b}	3.27^{b}
T_6:VC_{15}- ton ha^{-1}	2^{ab}	3^{ab}	3^{bc}	3^{bc}	2.20^{cd}	2.66^{c}	2.76^{c}	2.76^{d}

Values followed by different letters are significantly different at $P \leq 0.05$ according to Tukey's multiple range test (Tukey's test).

Fruits

The results displayed in Table 5 showed the maximum number of fruits (7 fruits $plant^{-1}$) was harvested at maturity stage from T_3 followed by T_5 (4 fruits $plant^{-1}$), while the lowest number of fruits (2 fruits $plant^{-1}$) was recorded in control and T_4. The results point out that the yield of T_4 was lower than the T_3 and T_5. Yet this yield of T_4 and T_1 carried the same value. The yields of T_4 might have closer with T_3 and T_5. It can be explained from the facts of the study that the plants in T_4 were injured by insects and causes the yield reduction. Similar observation was found in a study of Arancon *et al*. (2002). They reported that growth and yields of field tomatoes and peppers increased significantly when the vermicompost applied to field plots at the rates of 20 ton ha^{-1} and 10 ton ha^{-1} for tomato and at rates of 10 ton ha^{-1} and 5 ton ha^{-1} for pepper compared with those receiving equivalent amounts of inorganic fertilizer.

Table 5. Effects of different doses of vermicompost on the fruits of green capsicum plants.

Treatments	No. of fruits per plant	Largest fruit length (cm)	Largest fruit diameter (cm)	Fresh weight of total fruits (g/plant)	Dry weight of total fruits (g/plant)	Fresh weight of a fruit (g/plant)	Dry weight of a fruit (g/plant)
T_1:Control(VC_0)	2^{b}	15.40^{d}	5.83^{d}	61.00^{f}	5.125^{f}	30.10^{d}	2.56^{e}
T_2:$VC_{2.5}$-ton ha^{-1}	3^{b}	16.00^{c}	5.37^{e}	88.00^{c}	10.70^{c}	44.00^{a}	3.57^{c}
T_3:VC_5 -ton ha^{-1}	7^{a}	16.53^{b}	6.17^{c}	320.25^{a}	31.02^{a}	44.75^{a}	4.43^{a}
T_4:$VC_{7.5}$-ton ha^{-1}	2^{b}	13.90^{e}	7.30^{a}	73.33^{e}	6.55^{e}	38.66^{c}	3.28^{d}
T_5:VC_{10} -ton ha^{-1}	4^{ab}	18.97^{a}	6.57^{b}	167.33^{b}	15.96^{b}	41.83^{b}	3.99^{b}
T_6:VC_{15}- ton ha^{-1}	3^{b}	14.06^{e}	4.23^{f}	85.50^{d}	7.15^{d}	28.25^{e}	2.38^{f}

Values followed by different letters are significantly different at $P \leq 0.05$ according to Tukey's multiple range test (Tukey's test).

Further observation showed in Table 6 that it was yielded the same number of fruits (3 fruits $plant^{-1}$) in the T_6 (where highest 15 ton ha^{-1} dose of VC was applied) and T_2 (where lowest dose of VC 2.5 ton ha^{-1}

was applied). It's an evidence that there is no need of highest dose VC at the rate of 15 kg ha^{-1} application to produce maximum yield. Similar findings were observed in a study conducted by Jashi and Vig (2010).

The maximum length of fruit (18.97 cm) was recorded in T_5 followed by T_3 where the largest diameter (7.30 cm) was observed in T_4. The maximum fresh weight of total fruits (320.25 g) was recorded in T_3 followed by T_5, T_2, T_6, T_4 and T_1. In case of the dry weight of total fruits per plant, similar finding was observed. The average weight of individual capsicum fruit was recorded for each treatment and demonstrated in the Table 5. The results show that there was a significant treatment difference for weight of fruit measured under the application of graded dosages of vermicompost. The average fresh and dry weight of individual fruit per treatment was significantly higher in T_3 followed by T_2, T_5, T_4, T_1 and T_6. Almost similar observation was found from another study on the effect of vermicompost and other fertilizers on the cultivation of tomato plants using different fertilizers having equal concentration of nutrients to determine their impact on different growth parameters of tomato plants (Chanda *et al*. 2011). They found that the application of vermicompost supplemented with NPK treated plots displayed better results with regard to the fresh and dry weights of leaves, dry weight of fruits, number of branches and fruits per plant from other fertilizers treated plants.

Fresh and dry weight of plants

The fresh and dry weights of root, shoot and leaf varied significantly ($p<0.05$). The highest shoot weight (42.67 g) and leaf weight (56.0 g) were recorded in T_3 which varied significantly from other treatments except T_5. The maximum weight of root (11.20 g) was recorded in T_5 followed by T_3. The lowest root, shoot, and leaf weights were recorded in control (T_1). However, the maximum fresh weight and dry weight of plants were measured in T_3 (VC 5-ton ha^{-1}) which varied significantly from other treatments except T_5 (VC 10-ton ha^{-1}). This behavior is consistent with the findings of research workers Karmegam and Daniel (2000) who found that the fresh and dry matter yields of green gram were higher in vermicompost amended soils than soils with bio-digested slurry.

Table 6. Effects of different doses of vermicompost on the fresh and dry weights of green capsicum plants.

Treatments	After harvesting of plants							
	Fresh weight (g/plant)				Dry weight (g/plant)			
	Root	Shoot	Leaf	Total	Root	Shoot	Leaf	Total
T_1(Control(VC_0))	4.42^e	14.67^d	18.67^f	37.76^f	0.67^f	2.18^e	4.02^f	6.87^f
T_2($VC_{2.5}$-ton ha^{-1})	7.50^c	11.33^e	36.67^d	55.50^d	1.42^d	4.30^c	6.78^c	12.50^d
T_3(VC_5 -ton ha^{-1})	10.73^b	42.67^a	56.00^a	109.4^a	1.86^b	7.72^a	11.45^a	21.03^a
T_4($VC_{7.5}$-ton ha^{-1})	7.83^c	33.77^c	42.00^c	83.60^c	1.61^c	6.42^b	5.75^d	13.78^c
T_5(VC_{10} -ton ha^{-1})	11.20^a	42.00^b	53.33^b	106.53^b	1.97^a	7.87^a	10.83^b	20.67^b
T_6(VC_{15} -ton ha^{-1})	5.38^d	14.67^d	28.67^e	48.72^e	0.93^e	3.80^d	4.60^e	9.33^e

Values followed by different letters are significantly different at $P\leq0.05$ according to Tukey's multiple range test (Tukey's test).

All vermicompost treatments had significant positive influence over control on the growth and yield parameters. Highest fruit yield was found in T_5 (VC 10-ton ha^{-1}) and lowest in control. The performance of T_3 also found better in enhancing the growth and yield. An evaluation from the study revealed that highest dose containing T_6 (VC 15-ton ha^{-1}) reduced the growth and yield. It created an evidence that utilization of cheap price vermicompost on green capsicum chili or vegetable crops will minimize the cost of production. Small scale farmers and producer of vermicompost will also be benefited.

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