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ANALYSIS

Effect of vermiwash in different breeds of cow dung compost on the Fire Creaker Plant *(Crossandra)*

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EFFECT OF VERMIWASH IN DIFFERENT BREEDS OF COWDUNG COMPOST ON THE FIRE CREAKER PLANT *(CROSSANDRA)*

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ABSTRACT:

The role of vermiwash an organic liquid fertilizer as foliar spray on plant growth regulators on the exo-morphoiogical characters of crossandra were investigated. The results of the study showed that vermiwash exhibited growth promoting effects on the exo-morphological characters such as plant height, Number of leaves, Leaf length, Leaf breath, and of *crossandra.* Among the different cow breeds (Gir, Hariyana, Frecian) of vermiwash treatment used in the study. Vermiwash treated in plant growth increased the 15.25±2.1650 cm as compared to control 8.75±0.9574. The number of leaf increased the 15±1.9202 as compared to control 8±0.43330. The leaf length increased the 6.42±0.8826 cm as compared to control 4.64±1.5348. The leaf breath increased the 4.38±0.1866 compared the control 3.17±0.3669. These results clearly indicate the vermiwash can be exploied as a potent biofertiliser. After a period of 5 week study.

Key words : Vermiwash, Earthworms, and Crossandra plant.

INTRODUCTION

Vermiwash plays an important role in the plant growth and development, contribute to initiation of rooting, root growth, plant development, promotion growth rate and improvement in crop production increasing the soil organic matter and increase in nutrient content. Vermiwash is an indispensable part of vermicompost, which is a watery extract of earthworms. The quality of vermiwash produced by earthworms. Vermiwash contain N, P, K, Ca and hormones such as auxin, cytokinine, some other secretion and many useful microbes like heleroprophic bacteria, fungi ect.,(Rai et al.,2008). This leachate is also termed vermiwash and is brownish in color. The vermiwash is formed due to the movement of water in the worm bin from the increased

moisture content due to heat generated during the vermicompost process (Manyuchi et al ., 2013). Effect of vermiwash on plant growth of black grom reported. Use of vermiwash extractede frome vermicomposts of different combination of cowdung is one of the effective liquid bio fertilizer for growth and productivity of crops (Gorakh et al., 2012). Vermiwash is a liquid fertilizer used in organic agricultur both as replacement and supplement for solids and for their unique capacity to provides nutrients effectively and quickly. Vermiwash generally used as a foliar spray.

The role of earthworm in soil formation and soil fertility has thus been well documented and recognized. The study revealed that vermiwash at lower concentration was effective in bringing about plant germination and growth. Vermiwash is bio fertilizer that is known to bring about growth enhancement in a wide variety of plant (Mujeera Fathima et al .,2014). The fresh vermiwash houses a large number of beneficial microorganisms. Vermiwash also possesses an inberent property of action not only as a fertilizer. When small amount as foliar sprays, modify the natural growth, right from plant germination to senescence in crop plant. Vermiwash has excellent growth promoting effects besides serving as bio pesticide. In recent days the vermiwash is used as liquid manure (Devan Elumalai et al .,2013).

The effect of the vermiwash by the produced by the common composting earthworm eudrilus euginae. On the growth of different cowdung vremiwash collected at the bottom were drained out daily and poured back in to the respective pots (Karuppasamy et al.,2013). Vermiwash is a good foliar spray solution containing abundant beneficial micropes. Foliar spray of nutrient solution and plant growth susstances are one of the cultivation practices significantly influencing productivity of horti cultural crop(Siddappa et al .,2010). The crossandra will reward you for incorporation 3 to 4 inches of organic matter. The whole plant leaves and roots are used for a variety of purposes in traditional india medicine.

The aim of present study to observed effect of vermiwash prepared from different breeds of cow dung on the growth.

MATERIALS AND METHOD

MAINTENANCE OF EARTHWORM

About 100 earthworms were taken out of the vermicompost bed kept in the vermicompost containing cow dung and leaf litter. The vermicompost was kept moist by adding good amount of water to it. The temperature was maintained at 25^0 c and the soil moisture was aiso maintained.

COLLECTION OF VERMIWASH

The production of vermiwash was done by a simply constructed apparatus, consisting of a broad based cement pot of 10-15 liter capacity. A cement perforated funnel which was placed upside down with it wide open end covered with a nylon net was placed in the pot. A layer of pebbles and sand were placed around funnel for easy percolation of water. 10 kg of cow dung was collected from healthy cows of gir, haryana, gercy (three cows) free from any infection. Maintained under medical supervision at goshala in sri-vital rukmini samasthan govindhapuram. Were spread around the funnel inside the pot and living healthy earthworms were kept in this organic waste. The liter of water was added to it. After 24 hours vermiwash collected in the funnel can be siphoned out.

MAINTENANCE OF PLANT

Clay soil, red soi, and sand were collected from in and around college. The plant of fire creaker were collected from saratha nursery kumbakonam. Pot of culture studies were conducted to find out the effect of vermiwash on growth of crossandra plant. Clay soil, red soil, and sand were mixed in the radio of 3:2:1 and the pots were filled with the mixed soil. On the 5 th day vermiwash sprayed as foliar spray on the surface of the leaves. The parameters such as leaf length, number of leaf, were measured on the five weeks. Vermiwash is mixed with water. A hand sprayer was used for spraying. Ordinary tap water is sprayed in the control.

RESULT

The following exo – morphological characters were observed at the interval of every seven days in control and treated sample though out the experimental peried (5week).

PLANT GROWTH:

The plant grown in pot (C) in control plant. The plants grown in pot (T1, T2, T3) had different breeds of vermiwash. The plant growth and variation in morphological features were poted after 1^{th}, 2^{th}, 3^{th},4^{th}, 5^{th} weeks. (Table 1) the T3plant growth better plant growth when compared T1, T2 and control. The plant in showed (10 % treatment) T3 was (15.25), C was (13.25), T1 was (15), T2 was (12.25).

NUMBER OF LEAF:

The number of leaf observed (Table 2). The T1 plants number of leaf better when compared T2, T3 and control. The plants in showed (10 % treatment) T1 was (15), C was (9), T2 was (14), T3 was (12).

LEAF LENGTH:

The leaf length observed (Table 3). T1 leaf length better when compared T2, T3 and control. The plants in showed (10% treatment) T1 was (6.42), C was (5.76), T2 was (5.59), T3 was (6.00).

LEAF BREATH:

The leaf breath observed (Table 4). T1 leaf breath better when compared T2, T3 and control. The plants in showed (10 % treatment) T1 was (4.38), C was (4.16), T2 was (4.02), T3 was (3.97)

TABLE -1

MORPHOLOGICAL STUDIES IN FIRE CREAKER (CROSSANDRA)

PLANT GROWTH IN (CM)

S.NO	TREATMENT	C	T1	T2	T3
1.	I.D	11.75±3.8622	7.75±3.5939	9.25±1.5	8.75±0.9574
1.	1WEEK	11.75±3.8622	12.125±4.8023	10.375±2.0564	10.75±2.2173
2.	2WEEK	11.925±3.6454	12.525±4.3706	10.5±2.0412	13.5±3.4156
3.	3WEEK	12.5±4.1231	13.5±4.3588	11±1.6329	14.125±3.1721
4.	4WEEK	12.75±3.3447	14.5±3.2015	11.75±1.7853	14.75±2.5860
5.	5WEEK	13.25±3.8324	15±2.9154	12.25±2.1650	15.25±2.1650

TABLE -2

MORPHOLOGICAL STUDIES IN FIRE CREAKER (*CROSSANDRA*)

PLANT IN NO.OF LEAF IN (CM)

S.NO	TREATMENT	C	T1	T2	T3
1.	I.D	7±0.8291	8±0.4330	7±3.3447	7±3.2015
1.	1WEEK	7±1	9±1.5	9±3.5355	7±3.5619
2.	2WEEK	7±1	11±2.7386	10±4.2646	10±3.6742
3.	3WEEK	8±0.7071	13±3.1622	11±4.0311	11±3.0413
4.	4WEEK	8±0.5	14±2.6925	13±3.5355	12±2.7726
5.	5WEEK	9±0.7071	15±1.9202	14±3.5	12±2.2776

TABLE -3

MORPHOLOGICAL STUDIES IN FIRE CREAKER (CROSSANDRA)

PLANT IN LEAF LENGTH IN (CM)

S.NO	TREATMENT	C	T1	T2	T3
1.	I.D	4.71±1.2458	4.64±1.5348	4.26±0.3590	4.23±0.4938
1.	1WEEK	5.07±1.0708	5.22±1.4550	4.105±0.6732	5.20±1.0638
2.	2WEEK	5.16±1.0213	5.29±1.1993	4.755±0.4561	5.36±1.0060
3.	3WEEK	5.16±1.1508	5.86±1.2009	5.07±0.5318	5.355±0.7777
4.	4WEEK	5.75±1.0616	6.09±1.0742	5.56±0.2835	5.81±0.4306
5.	5WEEK	5.76±0.9713	6.42±0.8826	5.59±0.1415	6.00±0.5028

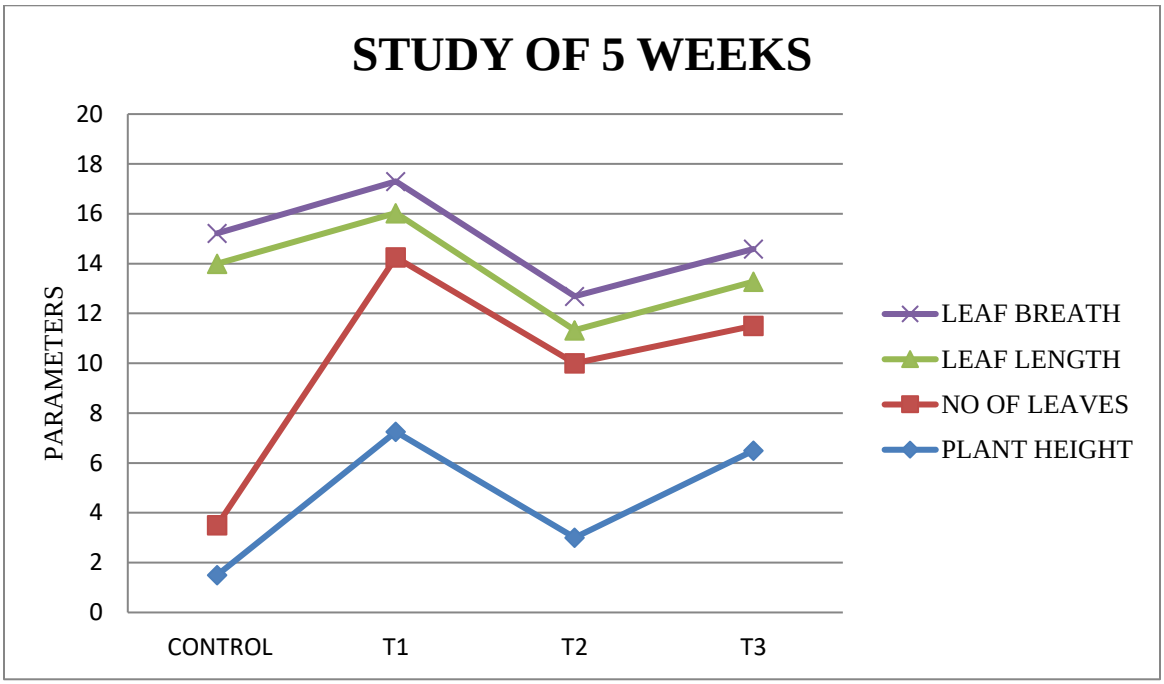
TABLE -4

MORPHOLOGICAL STUDIES IN FIRE CREAKER (CROSSANDRA)

LPANT IN LEAF BREATH IN (CM)

S.NO	TREATMENT	C	T1	T2	T3
1.	I.D	2.94±0.6302	3.17±0.3669	2.66±0.2814	2.66±0.3561
1.	1WEEK	3.19±0.4509	3.51±0.4211	2.75±0.4724	3.15±0.4377
2.	2WEEK	3.32±0.3521	3.72±0.2801	3.17±0.6344	3.19±0.4355
3.	3WEEK	3.46±0.3870	3.99±0.4348	3.70±0.3652	3.42±0.3310
4.	4WEEK	3.85±0.2377	4.26±0.2299	3.78±0.4704	3.87±0.2305
5.	5WEEK	4.16±0.2954	4.38±0.1866	4.02±0.2677	3.97±0.2984

EFFECT OF VERMIWASH IN THE DIFFERENT BREEDS OF COWDUNG ON THE EXO – MORPHOLOGICAL CHARACTERS OF CROSSANDRA PLANT



DISCUSSION

Among the various foliar treatment used in present investigation it is obvious from the results the plant height increased with increased with increased duration of treatment. Plant height was maximum in T3 when compared to control. Maximum plant height was recorded in plants involving vermiwash spray. These observation confirmed early studies on crossandra (Lalitha 1999). But maximum number of leaf was recorded in vermiwash treated plants, which may be due to increased availabbilityn of more exchangeable nutrients in the soil by the applications of vermiwash (cook 1980).

The positive effect of vermiwash on plant growth in the present studies (Buckerfield 1999). Who reported that weekly application of vermiwash increased crossandra growth and yield. Leaf length was maximum increased in T1 when compared to control plant. Who had observed significant increased in leaf length in crossandra plant. It was also observed that the foliage turned 5 weeks on plant treated with vermiwash (Anonymous 1993).

Reported that vermiwash can be sprayed on plants as foliar spray, which improves the growth, quality and yield of crossandra plant. The growth rate of plants is also increased in the vermiwash enriched then control. Leaf breath was maximum in plants involving vermiwash treatments. The plant showing increased leaf breath. The clearly indicates that vermiwash is suitable for quick absorption of the major nutrient and provides enhanced nourishment for plants (Atiyesh 2000).

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