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Publication History

Received: 26 March 2015

Accepted: 24 April 2015

Published: 20 May 2015

Citation

Ponnumani A, Semmalar R. Effect of panchagavya on growth parameter analysis of capsicum frutescens. *Species*, 2015, 14(44), 88-99

EFFECT OF PANCHAGAVYA ON GROWTH PARAMETER ANALYSIS OF CAPSICUM FRUTESCENS

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ABSTRACT:

Agriculture contributed to be the main stay of the Indian economy contributes about 25% to the national gross domestic product (Vidyasaager *et al.*, 1978). In the last few decades, there were changes in the agriculture practice from small to larger forming that emphasized in production efficiency using modern agricultural strategy. The extensive use of chemical fertilizer and pesticide according to this strategy caused numbers of deaths and illness to the farmers. Panchagavya has got reference in the scripts of Vedas (Divine scripts of Indian wisdom) and (Kasha means plant and Ayurveda means health system). The texts kasha Ayurveda as systematization of thee practices that the farmers followed at field level, placed in a theoretical frame work and it defined certain plant growth stimulant, among them panchagavya was an important one that enhanced the biological efficiency of crop plants and quality of fruits and vegetables. Panchagavya induces the synergitic effect with bio fertilizer and soil microorganism; it leads to improved to water and nutrient – holding capacityIn the present study a preliminary attempt have been made to find out the effect of Panchagavya on the growth of plants especially on chili plant (*capsicum frutescens*) growth parameter Analysis. The Panchagavya applied plants is well growth and not the attack of pathogens including Fungi, Bacteria, etc.

Key word: The panchagavya use cow dung, cow urine, cow milk, curd, ghee, chilli seeds.

INTRODUCTION

Agriculture is a comprehensive production management system which promotes and enhances health of agro – ecosystem, including bio – diversity, soil biological activity and biological cycles (*Raghavendra et al., 2014*). The current global scenario firmly emphasizes the need to adopt eco – friendly agricultural has made an adverse impact on the healthcare of not only soil but also the beneficial soil microbial communities and the plants cultivated in these soils (*Sakar et al.,2014*).

Vegetables cultivation is a significant part of the national agricultural economy, especially in the developing world. It will be necessary to increase supply of food and other inputs to improve yields and productivity. India is an agricultural country (*FAO., 2004*).

The present problem in our country are the addition of synthetic chemicals like chemical fertilizer, Pesticides and soil amendments which began to affect not only the soil health and agricultural production but also the entire environment conditions. Indiscriminate use of chemical pesticides particularly affected living organism and environment. Traditional Indian system of medicine such as Ayurveda is based on holistic treatment of diseases primarily relying on naturally occurring Medical substances drug. They contributed significantly to. agriculture. Organic farming to be effectively replaced by natural forming brings ecological sustainability and agricultural development reverse the degenerative momentum of modern agriculture. Now a day the cost of chemical fertilizer aregoing up very high. The farmers are getting used to organic manures to reduce the penses towards fertilizers and to increase the yield of crops (*odetola et al., 2004*).

The product from the cow such as cow milk, cow dung, cow urine, curd and ghee is called as “Panchagavya”. The method preparing Panchagavya is not an easy task. Each product was taken with a proper measure to prepare Panchagavya. These five products are to mixed to get Panchagavya. These matters collected or found in “Vishnu Dharma” a holy book for Hindus. In fact offering to the cow are an essential part of the Hindu life called “Panchagavya Yagna” cow is worshipped as a god.

Panchagavya induces the synergitic effect with bio fertilizer and soil microorganism; it leads to improved to water and nutrient – holding capacity. The soil begins to take on a spongy

and is less prone to compaction (Natarajan, 1999). Panchagavya is a nutrient prepared by organic farmers of Tamil Nadu (one of the states in India) using indigenous materials and applied widely for agricultural and horticultural crops. Human disease cure in panchagavya therapy Diabetes mellitus, cardiac disease, viral disease, Respiratory disease, in gastroenterology, cancers, arthritis, skin diseases, peptic ulcer, *et.al.*, Benefits of chili food fresh, dried, vitamin-A and C, Relieve muscle, joint, and toothache pain, treat cough, asthma and sore throat, *et.al.*, (Natarajan, 2002).

Chili plant has indigenous medicinal uses, treatment of several ailments including asthma, skin infections, and constipation. Fruit extract of plant have shown to possess antimicrobial activity against different bacterial and fungal strains (Mukesh *et al.* , 2010).

SCIENTIFIC CLASSIFICATION:

MATERIAL AND METHODS:

Kingdom : planta

Division : magnoliophyta

Class : magnoliopsida

Sub class : asteridae

Order : solanales

Family : solanaceae

Genus : capsicum

Species : capsicum frutescens

PEREPARATION OF PANCHAGAVYA:

(Details of ingredients added for the preparation of panchagavya was described by Natarajan 2004).

Fresh cow dung	-	5 kg
Cow's urine	-	3 liters
Cow's milk	-	2 liters
Cow's curd	-	2 liters
Cow's ghee	-	12 kg

Sugarcane juice	-	3 liters
Banana (ripe)	-	12 No
Toddy or grape juice	-	2 liters

MODE OF PREPARATION:

For preparing panchagavya, we need a wide method mud pot, concrete tank or plastic cans. Metal containers should not be used. First put the fresh cow dung and cow's ghee into the container and mix it thoroughly twice daily for 3 days. On the fourth day add the rest of the ingredients and stir it twice daily for 15 days.

The Panchagavya stock solution will be ready after the 21 day. It should be kept in the shade and covered with a mesh or plastic Mosquito net to prevent houseflies from laying eggs and the formation of maggots (worms) in the solution. If sugarcane juice is not available and 500 grams of jiggery dissolved in 3 liter of water Likewise, if toddy is not available, add 100gm of yeast power and 100gm of jiggery to 2 liters of warm water. After 30 minutes, add this solution replace toddy in panchagavya. Another method is you take 2 liters of tender coconut water and keep it in a closed plastic containers for 10 day. After fermentation it becomes toddy. This solution can be prepared beforehand and used to replace toddy. When stirred twice daily, the panchagavya solution can be kept for 6 months without any deterioration in this quality Whenever the solution becomes thick due to evaporation of water over a long period, suitable quantity of water can be added to keep it in liquid state.

TREATMENT DETAILS:

C – Control

T1 – Panchagavya Treatment (25% Pot)

T2 – Panchagavya Treatment (50% pot)

T3 – Panchagavya Treatment (75% pot)

T4 – Panchagavya Treatment (100% pot)

RESULT

PLANT GROWTH:

The plant growth in pot (C) In control plants. The plants grown in pot (T1, T2, T3, and T4) had different concentration of panchagavya solution was mixed. The plants growth and variation in morphological features were potted after 20th days, 40th days, and 60th days. (Table I) the T4 plant growth better plant growth when compared T1, T2, T3, and Control. The plants in showed (100% treatment) Control was (18.9cm), T1 was (19.95cm), T2 was (21.55cm), T3 was (23.05cm), T4 was (26.15cm).

LEAF LENGTH:

The leaf length was observed (Table II) For T4 (100% Treatment) Control was (5.3 cm) T1 (5.45cm), T2 (5.55cm), T3 (5.8cm), and T4 (5.85cm).

LEAF WEIGHT:

The plants growth one presented in (Table III) the maximum growth was observed T4 (100% Treatment) was Control (0.12 gm), T1 (0.14gm), T2 (0.18gm), T3 (0.21gm), and T4(0.31gm).

ROOT LENGTH:

The root length was measured in (Table IV) control, T1, T2, T3, and T4. The maximum length was observed in T4 (100% Treatment) was control (5cm), T1 (5.5cm), T2 (8cm), T3 (9cm), and T4 (11).

CHLOROPHYLL ESTIMATION:

The total chlorophyll was measured in (Table V) control, T1, T2, T3, and T4. The maximum of chlorophyll was present in control (95gm/ml), T1 (118gm/ml), T2 (132gm/ml), T3(144gm/ml), and T4 (165gm/ml).

PHYSICO, CHEMICAL AND BIOLOGICAL PROPERTIES OF PANCHAGAVYA:

Physic, chemical and biological properties of panchagavya revealed that they possess almost all the macro nutrients and micro nutrients are required for crop growth. The results were similar reported by mathivanan et al., 2006. The analyzed results of the physico, chemical and biological properties of panchagavya were given in the Table IV.

TABLE – 1

Morphological studies in chilli plant (*capsicum frutescens*)

Plant growth in (cm)

leaf length	C	T1	T2	T3	T4
20 th Day	4.35	5.65	5.83	6	6.15
40 th Day	9.7	10.55	11.85	12.75	14.05
60 th Day	18.9	19.95	21.55	23.05	26.15

C – Control

T1 – Panchagavya Treated 25%

T2 – Panchagavya Treated 50%

T3 – Panchagavya Treated 75%

T4 – Panchagavya Treated 100%

TABLE: II

Morphological studies in chili plant (*capsicum frutescens*)

Leaf Length in (cm)

S.NO	DAYS	CONTROL	T1	T2	T3	T4
1	20 th Day	3.1	3.24	3.26	3.35	3.43
2	40 th Days	4.55	4.74	4.89	5	5.05
3	60 th Days	5.3	5.45	5.55	5.8	5.85

C – Control

T1 – Panchagavya

T2 – Panchagavya

T3 – Panchagavya

T4 - Panchagavya

Table – III

Morphological studies in chili plant (*Capsicum frutescens*)

Leaf Weight in (gm).

S.NO	CONTROL	T1	T2	T3	T4
1	0.12	0.14	0.18	0.21	0.31

Table –IV

Morphological studies in chili plant (*Capsicum frutescens*)

(Root length in cm)

S.NO	CONTROL	T1	T2	T3	T4
1.	5	5.5	8	9	11

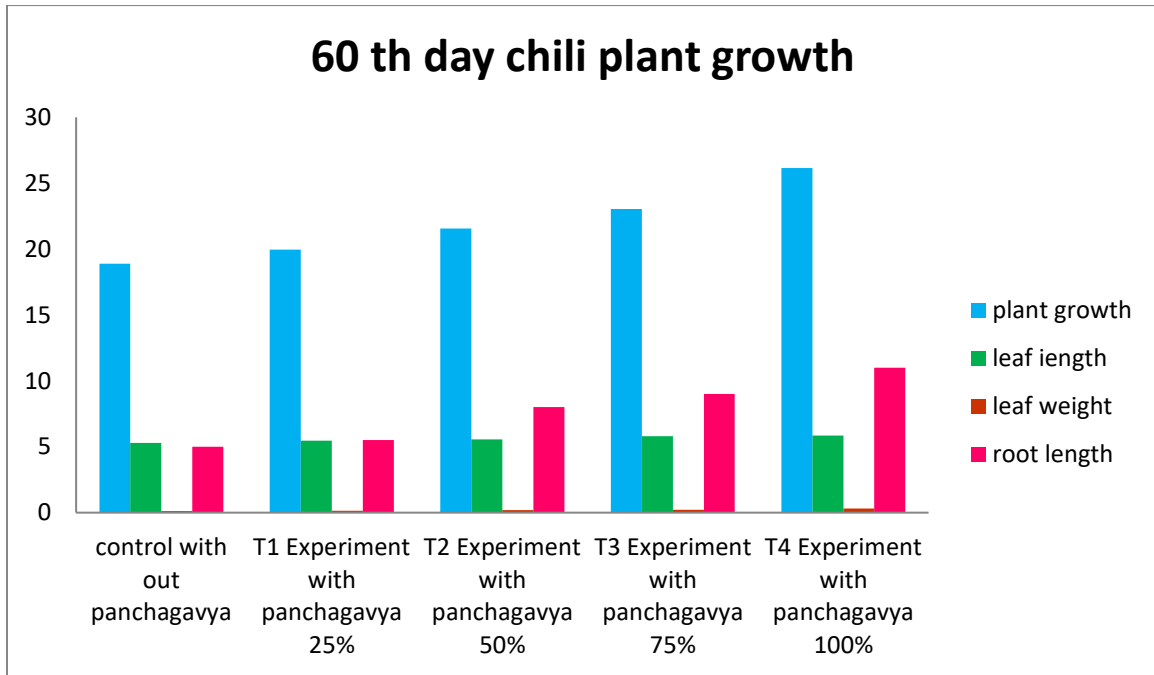
TABLE – V

Total chlorophyll in (capsicum frutescens) gm/ml

S.NO	CONTROL	T1	T2	T3	T4
1	95	118	132	144	165

FIGURE – V

Morphological studies in chili plant (capsicum frutescens)



DISCUSSION

This is conformed after the earlier finding of dalhaman et al., (1996) studied cow dung and showed that it is used as renewable cooking energy and slurry compost. Ramachandra Reddy (1997) studied three modified formulations panchagavya prepared and tested by him. Bhaskara padmodaya (1996) described panchagavya as effective Ayurvedic medicines in human diseases.

Mattering (1997) reported that 30 to 150 kg cow dung poured into gunny bag. literature like Vishnu Dharma the holy book and parthaguna sindhamani (kannusamy pillai, 1929). This travels that India has witnessed the use of panchagavya from ancient period's onwards. All over India during maha shivaratri the lingum is bathed with panchagavy.

Natrajan (2002) from kodumudi initiated the use of panchagavya as organic manure and also for curing plant disease in Tamilnadu. The study reveals how the organic manures obtained from low can be used for crop development. The results obtained can be applied as extensive methods for socio - economic and environment conservation on rural areas.

Agriculture plays an important role in our country. Hence adequate production of agricultural products and their commercialization is very essential Gunny bag was moved upwards and downwards for 10 to 14 days in 200 liter of water in drum. Drum water turns brown in color and developed Ammonia small, when this mixture along with 2% water was sprayed on the plants, better yield was observedekaran . Rajesekaran (2002) invented and studied effect of three modified formulation of panchagavya in oriza sativa and sprayed MPGI was most effective.

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