

# Study to Effect of *pseudomonas fluorescense* and Organic Matter on *capsicum annum* as a Bio-Fertilizer

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**Abstract:** Nature has ensured the nutrition of every organism, in the field of crop ecosystem where hundreds of species have harmful pests, disease-causing micro-organisms exist, and on the other hand beneficial friends of farming insect and useful Micro-organisms such as Fungal, Bacteria, Viruses and these harmful pests of sophisticated farming receive nutrition from pathogenic Micro-organisms and like a peaceful soldier play an important role in pest management.

**Keywords:** Fungal, Bacteria, Viruses, pathogenic Micro-organisms, Bio-Fertilizer.

## I INTRODUCTION

The presence of a limited number of harmful organisms of agriculture is an important part of the agricultural ecosystem. Farmers need to understand that in the absence of harmful Micro-organisms the population of Micro-organisms of farming will also be affected.

In Integrated Pest Management, the integrated use of all components is used to maintain the population of harmful organisms of farming to a limited level. In the development of organic farming in agriculture, Micro-organisms play an important role in the development of healthy food production, environmental protection, and ecological balance as well as the use of Micro-organisms for the management of crops of pest in the future will play an important role in the field. If farmers use these Micro-organisms as an alternative to lethal chemicals, then grain production will be able to support the development of organic farming.

Biological control is a natural ecological phenomenon. Which can be successfully used in the management of pest, and it can be a balanced, sustainable and economical pest control tool. The use of micro-organisms for pest is called microbial control. This is a new aspect of biological control, in which the use of pest's microbes is used for their control.

By practically detecting the natural enemies of pests for their microbial control and increasing their number, they can be utilized for the control of pest. Which is available by marking experts and is also easily accessible, inter-essentially we can resolve this solution in such a way. It is necessary to determine the timing of the use of Micro-organisms carefully on the weakening of the life cycle of the insect. They should be store at a cool and dry place.

### Material and Method: -

Present study basically planned to assess the "Study to Effect of *pseudomonas fluorescense* and organic matter on *capsicum annum* as a Bio-Fertilizer" required mainly following materials:

1. Plant species
2. Bacterial strain
3. Organic matters solution

### 1. Plant species: -

*Capsicum annuam* (Chili)

Firstly, we will take 5 healthy plants (*Capsicum annuam*) 01 is control plant, Comparison with control plant we observe in experimental plants.

**2. Bacterial strain:** -

Strains of bacteria isolated from the rhizospheric soil of *Dalberzia sissoo* were used in the study. Characterization of *Pseudomonas fluorescense* strains were done by following techniques:

1. Growth study
2. Gram staining

**Indole Production:** -

Sterilized Hydrogen Sulphide-Indole-Motility agar (SIM agar) slants or Tryptophan broth tubes were inoculated with the overnight cultures of the isolates and incubated for 48 h at  $28 \pm 2^\circ\text{C}$ . Following incubation, 10 drops of Kovac's indole reagent was added to each tube. The isolates showing production of red colour was recorded as positive for indole production.

**3. Organic matters solution:** -

- The first 20 litres will take urine of a native cow.
- 20 litres of cow urine mixed in urine by mixing about 2.5 kg of Margo leaves.
- Similarly, two kilograms of harebell leaves were crushed and mixed in this mixture.
- 250-500gm acid leaves also mixed in this mixture.
- 250-500gm chilli powder
- Strain some of cucumber leaves and mix it in this mixture.
- 500 -750 gm of tobacco powder.

**Observation:** -

- Measure plant height
- Total numbers of branches
- Plant weight

Factor	Treatments	Symbols
<i>pseudomonas fluorescense</i> + organic solution	Control with 03 plants	T1
	<i>Capsicum annuam</i> (Chili)	T2
	<i>Capsicum annuam</i> (Chili)	T3
	<i>Capsicum annuam</i> (Chili)	T4

**Dosage:** -**Treatment:** -

- In control plant give pure water as regularly.
- In treatment plants 1-2 gm per litre in bio fertilizer solution
- Over dosing does not cause any harmful side effects

Now mix all these ingredients well and keep it in sunlight for 15 days approximately, then fill them in the bottle, now this Bio fertilizer will never be spoiled.

This solution can be applied through low-pressure watering nozzles such as fan nozzles or other watering systems (drip system) after filtering with filters. First spray on healthy plant after transplantation of 20 days then second spray after transplantation of 35 days, last third spray after transplantation of 50 days. It also

positively affects our agriculture and yields excellent results, so in this way we can produce Organic farming by advanced materials and methods.

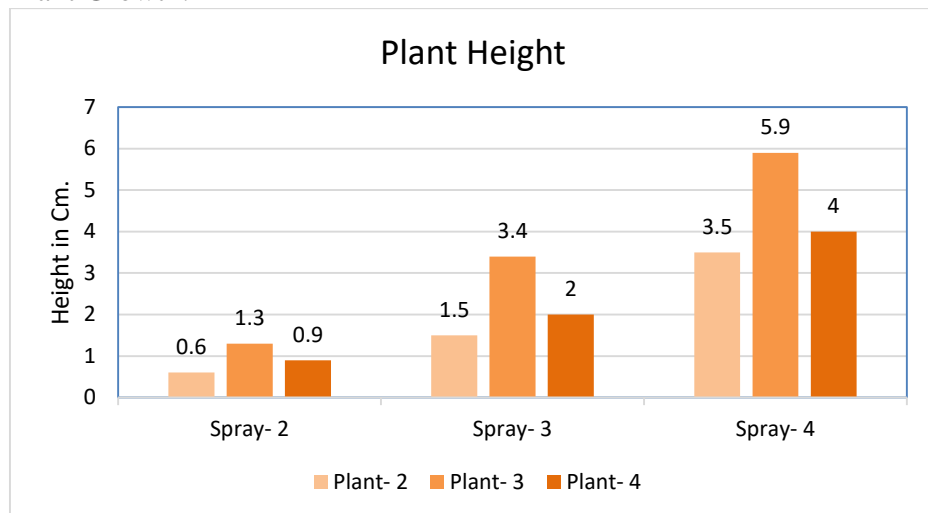
**Result: -**

**Control Plant measurement: -**

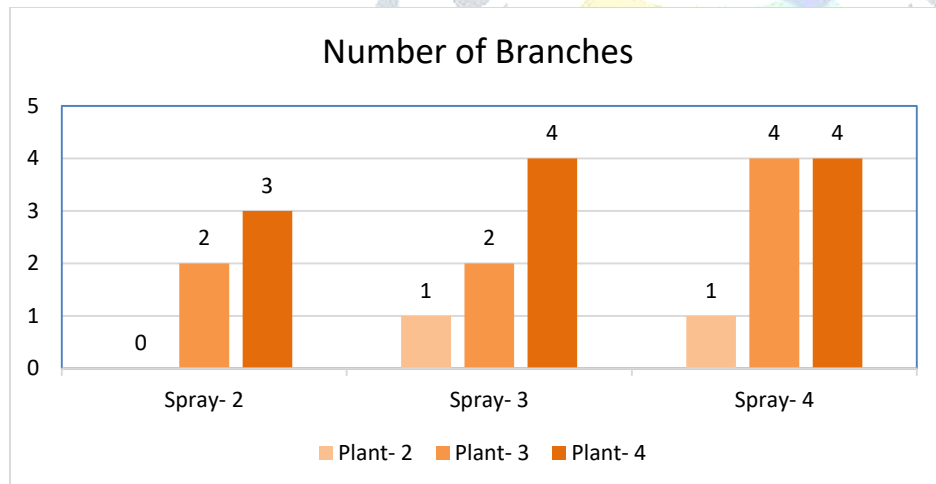
- Weight: - 6.0 cm
- Number of Branches: - 04
- Weight of Plant: - 2.0 kg with fruit

**Treatment Plant after transplantation showing by graph: -**

**Plant Growth: -**



**Total number of Branches: -**



**Overall weight with fruit: -**

Plant 2- 1.3 kg with fruit

Plant 3- 1.1 kg with fruit

Plant 4- 2.3 kg with fruit

## II CONCLUSION

These Micro-organisms do not leave any toxic effects on the environment and crops; they have specific destruction characteristics of the targeted insects.

With their use the development of immunity has been found to be low in insect, using these insects can also be controlled which are not destroyed by the normal pesticides they are safe for the beneficial pest of the cultivation.

Due to the minimum amount being used in production cost, there is a decrease in production cost. If the agrarian ecosystem is not manipulated continuous increase in the number of them will be helpful in controlling pest. They can be used in combination with pesticides and organic products.

Friends insect conservation of insects in agriculture and in natural biological form, we can control insects by pest free of agriculture in which our assistive insect consists of a mite insect circle mainly in the *Trichoderma sp.* which is a Micro-organism, which helps to free the disease by eating mildew.

*Pseudomonas fluorescens* an antibiotic Bacterium, which has the ability to consume the main diseases such as epidemic diseases, root mucus, and fungal infection in vegetables.

*Bacillus subtilis* is also an antibiotic bacterium, which mainly comes in the process of barley seed treatment, which increases the germination percentage by reducing the seeds.

World's growing population by 2050 food production target will have to be doubled and simultaneously the dependence on chemical fertilizers and pesticides will be reduced. In order to achieve this goal a study of many beneficial subjects in between the plants and Micro-organisms becomes necessary. Micro-organisms become more important due to their beneficial activities, ingestion of major nutrients, and in the development of branches and roots. In general, Micro-organisms used in agriculture include species of *Pseudomonas sp.* *Trichoderma sp.* *Streptomyces sp.* and many other Micro-organisms.

## III ACKNOWLEDGMENT

- Howard and Sir Albert, (1943). *An Agricultural Testament*, Oxford, UK: Oxford University Press.
- Bordinave, G., (2003). Louis Pasteur (1822-1895) *Microbes Infact.* 5 (6) 55360.
- Aneja, K.R. (2001). *Experiments in Microbiology, Plant Pathology and Tissue culture.* Viswaprakasham, New Delhi. 471.
- Panse, V. G and Sukhatme, P. V. 1989) *Statistical Methods For Agriculture Work.*
- Howard and Sir Albert, (1940). *An Agricultural Testament*, Oxford, UK: Oxford University Press.